INNOVATIVE TEACHERS AND THE EXPERIENCES, MOTIVATIONS, AND MECHANISMS THAT IMPACT THEIR INNOVATION:

AN EXAMINATION OF INNOVATIVE TEACHING AT PUNAHOU SCHOOL

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Andrew S. Aldrich

Dissertation Committee:

Sarah J. Twomey, Chairperson
Steve Shiraki
Dan White

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Abstract

As the world evolves towards an interconnected and global society, the need for new and innovative teaching practices has grown. Acknowledging this need, many schools have begun to articulate aspirational goals to help move their community towards a focus on skills and content that are deemed most valuable in the twenty-first century. However, despite these aspirations, many schools continue with outdated models and structures that can often hinder innovative teacher development.

Punahou School, located in Honolulu, Hawai‘i is the largest single campus independent school in the United States with over 3,750 students in grades K-12. Founded in 1841, students and teachers at Punahou have experienced countless innovations in education throughout the school's rich history. Like other schools, Punahou has articulated innovative aspirations that promote the growth of innovative teaching practices that align with the learning needs of twenty-first century students.

To ensure that these aspirations transform institutional practices, this study was developed to better understand how Punahou teachers come to embrace innovative teaching practices, what mechanisms impact their innovation, and how they overcome any range of institutional challenges. This was accomplished through the use of a multi-case study methodology that examined teacher innovation within and across the four school divisions. The results of this study conclude that most innovative classrooms are grounded in rich empathic relationships between a teacher and his or her students. Amongst the adjustments a school can make to support innovation, schools must strive to foster an environment where these empathic relationships thrive, which in part occurs through rich professional learning and a focus on personalized learning for all students.

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Introduction

Much has been written about innovation and learning over the first two decades of the twenty-first century. This discussion has ranged from advocates for common school standard across the nation (Jerald, 2008), to an examination of the key skills students must learn to be successful in our globalized world (Chen & Lucas, 2012; Khan, 2013; Wagner, 2010) . Although researchers can discuss the value of one innovative practice over another, I suggest that it is the work of innovative teachers in the classroom that tests the boundaries of twenty-first century learning. Although these innovative teachers differ in numerous ways, they are united by their pursuit to develop improved learning experiences for their students. I would argue that they are likely scattered throughout every school; the colleague that is constantly trying a new teaching strategy, or the teacher whose pursuit to reach every student has resulted in robust formative assessment to support learning. Perhaps, some of these teachers embrace the title of innovator while others are less comfortable being described this way. Yet, their work constantly impacts their students while often growing and pushing the work of others in the community.

Wagner (2012) points out "innovation…[is] the process of having original ideas and insights that have value, and then implementing them so that they are accepted and used by significant numbers of people" (p. 7). Additionally, the important work of innovation in the classroom works towards the development of a more innovative society, or as one researcher states, "schools should set a good example and act as a starting point for more innovative behavior of our citizens so that society can stay competitive" (Thurlings, Evers, & Vermeulen, 2015, p. 431).

As schools and teachers have wrestled to define the key characteristic of learning in the twenty-first century, an understanding of the value and purpose of education has shifted as we enter a society where knowledge is easily obtained and access to facts and evidence is accessible through any computer, tablet, or smart phone connected to the internet. Wagner and Dintersmith (2015) describe this phenomenon, adding:

> We live in an innovation economy. In this new world, the skills necessary to do well professionally have converged with the skills needed to be an effective citizen. Fifty years ago, before the Internet, it made sense for schools to teach kids "just facts." But in today's world, there is no longer a competitive advantage in knowing more than the person next to you because knowledge has become a commodity available to all with the swipe of a finger. Now, adults need to be able to ask great questions, critically analyze information, form independent opinions, collaborate, and communicate effectively. These are the skills essential for both career and citizenship. (p. 20)

This shift rewards learners and institutions that focus less on content driven pedagogy and content consumption, but instead towards classroom experiences that build a student's capacity to harness and leverage content and knowledge.

From No Child Left Behind (2002) to Race to the Top (2011), one only needs to review the numerous government sponsored or mandated curricular initiatives in the last twenty years to understand the heightened concern around the steady decline of the American education system. Both local and federal policies—including the development of charter schools, as well as private and non-profit foundations, have invested and

worked tirelessly to improve education results (Kovacs, 2010; Wohlstetter, Smith, & Farrell, 2013). Despite recent improvements, only four out of five American high school students are expected to graduate from high school within four years, with averages for minority students consistently lower (Kena, Hussar, McFarland, Musu-Gillette, Wang, Zhang, Wilkinson-Flicker, Diliberti, Barmer, & Mann., 2016, p. 182). Additionally, jobless numbers continue to rise for Americans under 25 with a bachelors degree, while 48% of employed graduates work in industries that require less than a 4-year college education (Vedder, Denhart, & Robe, 2013). This struggle to secure successful education reform can be connected to numerous factors, but is in part a fixation by many, including policy leaders, to link learning and school improvement with increased results on a variety of national and international test benchmarks, which direct resources towards frequently tested subjects like math, science, and literacy, and away from more innovative teaching practices that bolsters a diversity of talents and learning (Zhao et al., 2015, p. 5).

Punahou School

With a school history that spans over 175 years, Punahou School, located in Honolulu, Hawai‘i is the largest single campus independent school in the United States with over 3,750 students in grades K-12. Certainly, Punahou and its students and teachers have experienced countless shifts in educational philosophy, practice, and innovation over the last two centuries. Throughout its history, Punahou has become a school steeped in tradition and has become well known as a school of excellence in the field of independent education in the United States. This excellence has resulted in countless academic awards, well-known alumni, and a rich community presence. In addition to a

commitment to the continuous pursuit of excellence, Punahou has also embraced a tradition of innovation.

In support of innovation, in 2013, Punahou developed the *Aims of Punahou Education*, a set of four guiding principles at the heart of a Punahou education. Included in one of the aims is the articulation of Punahou's commitment to innovation in the twenty-first century, stated as:

> To develop within each Punahou student the capacity for critical and creative thought, and skills for effective written and oral communication, inter-personal collaboration, quantitative reasoning, scientific inquiry, and a global perspective. To develop qualities of curiosity, resourcefulness, persistence, and resilience—ultimately becoming a confident, self-directed, lifelong learner. (Scott, 2013)

Like any adjustment in philosophy, Punahou's *Key Aims* require innovation in pedagogy in order to fully realize these aspirations. Therefore, this research was developed to better understand in what ways Punahou's aspirations are in alignment with its own institutional practices.

Purpose of this Study

The purpose of this study is to better understand how teachers come to embrace innovative teaching practices, what mechanisms impact their innovation, and how they overcome any range of institutional challenges. In particular, various stakeholder within Punahou School may view this research as relevant to advancing Punahou's *Key Aims*, and that both teachers and administrators will see the findings of this study as impactful across the school and within each division. Additionally, since many schools are exploring ways in which to advance teacher innovation and twenty-first century teaching

practices; so in a broader sense this study hopes to provide insights on the phenomenon of teacher innovation and clarity around the impact of institutional mechanisms to advance innovation. Therefore, outcomes of the study may contribute to the growing literature on innovative teachers and how schools might better support all teachers to transform and align twenty-first century innovative teaching and learning aspirations with institutional practices.

This study seeks to research the following questions:

1. What experiences and practices have motivated teachers to become more innovative?
2. In what ways do teachers come to embrace innovative teaching practices?
3. In what ways is teacher innovation impacted by organizational structures and practices?
4. What propels teachers to be innovative within any grade level cluster/division in a school?

Literature Review

Importance of Teacher Innovation.

Embedded in the nature of this study is the belief that teacher innovation is valuable and an important component to the development of learner-centered schools. Although what is deemed innovative changes rapidly, a teacher's ability to continually adopt new teaching practices that reflect modern work practices will always be important. Thurlings (2015) highlights this, plus additional values to teacher innovation, stating:

> First, innovative behavior is important in order to keep up to date with a rapidly changing society. The demands in our knowledge society are indeed increasing both for students and their teachers. Second, upcoming new technologies and new insights about teaching require innovative behavior. Third, schools should set a good example and act as a starting point for more innovative behavior of our citizens so that society can stay competitive. After all, education is crucial to promote students' creative and innovative thinking. (p. 431)

Highlighting this last point, Thurlings (2015) concludes schools must "set a good example" in order for our society to continue moving forward.

Twenty-first Century Skills and Learning

Much has been written about focusing student learning in schools around twenty-first century skills (Chen & Lucas, 2012; Wagner, 2012; Wagner & Dintersmith, 2015; Zhao, 2012). Although researchers vary a bit on what should be considered a twenty-first century skill, most research in this area include some version of what Wagner (2010) described as the "Seven Survival Skills" which includes; critical thinking and problem solving, collaboration across networks and leading by influence, agility and adaptability,

initiative and entrepreneurship, accessing and analyzing information, effective oral and written communication, and curiosity and imagination. Other researchers have built off of these skill sets highlighting, for example, the importance of entrepreneurship in the development of twenty-first century skills (Zhao, 2012, p. 8).

The demand to increase twenty-first century skill development in schools has led some institutions to align these skills with their philosophical aspirations in an attempt to help prioritize school goals around innovation. In 2013, Punahou School developed and published its *Aims of a Punahou Education,* which includes aspirations with familiar language around innovation and twenty-first century skill development, including:

> To develop within each Punahou student the capacity for critical and creative thought, the skills for effective written and oral communication, interpersonal collaboration, quantitative reasoning, scientific inquiry, and a global perspective. To develop qualities of curiosity, resourcefulness, persistence and resilience – ultimately becoming a confident, self-directed, lifelong learner. (Scott)

Although this statement speaks to what is assumed of a Punahou student, embedded in this aim is the expectation that in order to develop students with twenty-first century skills, teacher practices--among other things--must evolve to support these aspirations.

For the purposes of this study, references to twenty-first century skills have been grounded in Wagner and Dintersmith's (2015) most recent work that has focused twenty-first century skill development around the "Four Cs:" critical thinking, communication, collaboration, and creative problem-solving (p. 223). Although cognitive development and retention of knowledge are still important aspects to effective classroom teaching,

researchers have established that other non-cognitive factors like the Four C's are critical to student success as described by Zhao (2015):

> Non-cognitive factors such as personality traits, motivation, interpersonal skills, and intrapersonal skills have been found to correlate significantly with educational attainment, workplace productivity, and life earnings. As a result, among the most highly valued personal qualities, academic achievement ranked lower than communication skills, motivation/imitative, teamwork skills, and leadership skills. (p. 4)

Keeping this in mind, the Four C's became the basis for a selection criterion for potential participants in this research study.

Definition of Innovation

The challenge in identifying innovative practices in a school is that one teacher's innovative behavior might be common practice for another teacher. To that point, practices that were considered innovative at one time might eventually become common practice amongst all teachers. Therefore, research around the patterns and motivations of teacher innovation, including this study, focus less on specific teaching strategies, but instead focus on practices and patterns common amongst innovative teachers. With this in mind, the definition of innovation can be quite simple and even common amongst many fields including, but not limited to, the field of education.

Not surprisingly a common understanding of innovation has surfaced in numerous studies around teacher innovation. Janssen (2003) stated, "innovative behaviour can be defined as the intentional generation, promotion and realization of new ideas within a work role, work group or organization, in order to benefit role performance, the group or the organization" (p. 348). Moreover, a comprehensive literature review published in

2015, cited that 14 out of 37 reviewed studies used Janssen's definition, and the remaining 23 utilized definitions "strongly related to this definition" (Thurlings, Evers, & Vermeulen, p. 440). Using this definition as a foundation for this study an additional selection criterion was developed to identify potential research participants and described as: teachers who intentionally generate, promote, and realize new teaching practices on a consistent basis year after year.

It's important to note that although the participant selection process was developed with the two-part criterion previously described, participants were not restricted in their interpretation or use of the word innovation during individual and focus group interviews. In fact, it's clear that although much of this study focuses on the experiences of innovative teachers that include twenty-first century skills in their teaching practices, some participants viewed their innovation as simply their constant quest for teacher renewal.

Challenges to Innovation

Since teacher innovation may be important to the evolution and growth of pedagogy in schools, one might assume that the promotion of innovative behavior would be common and encouraged, but in fact, the literature shows that innovative individuals often suffer for their innovative behavior. In his study on innovative behavior in the work place, Janssen (2003) found that,

> [Individuals that push] new ideas for change challenges the established framework of theories and practices shared by co-workers. Therefore, an [individual's] innovative behaviour is likely to be obstructed by resisting co-workers who have an interest in safeguarding the existing paradigm or

who want to avoid the uncertainty and insecurity surrounding change. (p. 347)

Janssen (2003) goes on to share that secondary teachers that report a high sense of identity in their job performance indicated conflict with coworkers or reduced satisfaction in relations with coworkers might play a factor in their tendency to pursue innovation (p. 359).

Interestingly, this finding aligns with Granovetter's (1973) theory of the strength of weak ties, which suggests that innovative behavior and new ideas were related to, and more common between, individuals with weak ties, versus strong ties between individuals, which is related to perpetuating the status quo. This suggests that those who care the less, or have less buy-in to perpetuate institutional norms, are more likely to promote innovation, and those who care the most about the overall well-being of an institution, and their role within it, are less likely to promote innovation. Ironically, it is the latter group that because of institutional knowledge and position, may have the greatest insights and guidance that could affect positive innovative behavior.

The Importance of Leadership in Promoting Innovation

Since the literature demonstrates that the promotion of innovation is not a natural tendency for those who have high involvement and identity in their role, and there are likely conflicts that will emerge between this group and those promoting innovation, leadership can play an important role in the generation, promotion and realization of innovative behavior. Thurlings (2015) highlights that at the very least in order to be innovative teachers need "support, guidance, and feedback" (p. 462). Janssen's (2003) findings also support this position arguing that "[when communities] lack the ability or willingness to discuss and resolve their disagreements, conflict will harm the further

development of the innovative ideas and the quality of their mutual relationships" (p. 359). However, contrastingly, Janssen (2003) concludes that conflict can actually be beneficial and when managed in a constructive way that "might increase the quality of the development and implementation of the innovative idea, might reduce the detrimental impact of the confrontation on the quality of the mutual relationships, and might facilitate the commitment of co-workers to the innovation" (2003, p. 359). Of course, determining which strategies best suit a particular school community varies, but some authors (Evans, 2001; Fullan, 2011) have written extensively about the role and importance of leaders to guide individuals and communities through innovation and school change.

Innovative Teacher Demographics

Numerous studies have examined the demographic profiles of teachers to determine if certain indicators could demonstrate a potential relationship with innovative behavior. An examination of these studies shows that gender (Carmeli, Meitar, & Weisberg, 2006), age, tenure (Thurlings et al., 2015), and level of education (Yang & Huang, 2008) have no significant effect on the likelihood of innovative behavior. Interestingly, increased years of teaching experience was determined to have a negative effect on the likelihood of innovative behavior in the classroom (Yang & Huang, 2008).

Other studies show that increased instances of innovative behavior occurred with teachers that possessed less than five years of teaching experience (Loogma, Kruusvall, & Ümarik, 2012), when teachers have had more years of education, or teachers who perform multiple functions in their position (literacy coach, IT support, etc) (Runhaar, 2008). A qualitative study (Horng, Hong, ChanLin, Chang, & Chu) examining three award winning innovative teachers found that each subject's upbringing played an important role in fostering their creativity and innovative path stating "[as a child] they

were given the freedom to explore themselves. No punishments were given when they made mistakes. Under these circumstances, [the teachers] were able to learn from their errors, fostering their creativity" (p. 354).

It's worth noting that a handful of studies (Horng et al., 2005; Mueller, Wood, Willoughby, Ross, & Specht, 2008; Runhaar, 2008) found that teachers with high levels of self-efficacy were more likely to demonstrate innovative behaviors. In fact, when self-efficacy was factored into the study it was found that this trait could usurp other factors that had negative correlations with innovative behavior (Thurlings et al., 2015, p. 444).

Organizational Factors

A number of studies have examined how organizational structures like culture and collaboration, resources, and school size might impact an innovative teacher's behavior. Numerous studies found the importance of organizational structures that encourage communication and collaboration within a school. In particular, structures that support small group interaction with colleagues, as well as the opportunity to develop and share ideas with others was found to support innovative behavior (Horng et al., 2005). Administrative support and guidance was also found to be helpful, and contrastingly a lack of guidance and feedback from administrators was determined to negatively impact innovation (Schussler, Poole, Whitlock, & Evertson, 2007).

Like any institution, the climate and culture in a school can play a significant role in shaping the school's trajectory and disposition towards innovative behavior. Factors ranging from supportive leadership, playfulness (Ping Yu, 2007), and transparency (Messmann, Mulder, & Gruber, 2010) all have an impact on the organizational climate for innovation.

A school's size and its resources, especially its ability to provide professional development to teachers, has had a variety effects on promoting innovative behavior (Mueller et al., 2008; Yang & Huang, 2008). From a number of studies, it is clear that in order to move school-wide innovation forward, schools must be willing to develop and deliver robust professional learning opportunities. However, school size and location has not had a significant impact on promoting teacher innovation (C. P. Chang, Chuang, & Bennington, 2010).

Teacher Empathy

In addition to examining factors that might have a more obvious influence on teacher innovation, like school culture or organizational structures, the literature demonstrates other significant influences, such as teacher empathy, as having an impact on a school's openness to innovation. Although not often discussed when considering factors that influence innovation, teacher empathy has been documented to be an important trait that is needed to facilitate positive interactions within the classroom (Messmann et al., 2010), and can be linked to reducing aggression and facilitating a sense of connection (Zhou, Valiente, & Eisenberg, 2003).

Tettegah and Anderson (2007) define teacher empathy as "the ability to express concern and take the perspective of a student, and involves cognitive and affective domains of empathy" (p. 50). In particular, perspective-taking seems to be an important aspect of teacher empathy, as Barr (2011) concludes when sharing "teachers with better perspective-taking would be able to take a third-person perspective, which would aid them in understanding students' relationships and reacting more appropriately to student behavior" (p. 367). This process becomes key to building supportive communities and relationships amongst students.

However, teacher empathy is not the cure-all to building better classroom experiences for students, as teachers must navigate the complexities of multiple students with varying needs, as Barr (2011) points outs when sharing:

> [since teachers must also] understand the larger context of the school, have to balance the needs of all students collectively, and need to take swift action to stop unwanted behavior. The balancing of these needs requires a more complex repertoire of responses than just emotional understanding.

As the researcher goes on to point out, "while teacher empathy might be beneficial in developing positive relationships with students, it takes more than just empathy to be able to negotiate the complex relationship between student and teacher" (p. 368).

Methodology

The following chapter discusses the development of the research study, the rationale for a multi-case study research methodology, and outlines in detail the participant selection process. Additionally, this chapter provides an overview of the data collection and data analysis processes.

Development of the Study

The development of this study's original statement of purpose and research questions began in January 2016 as part of the dissertation requirements for completion of the Doctor of Education (Ed.D) in Professional Practice Program at the University of Hawai‘i at Mānoa. IRB approval to conduct this study from the Human Subject Department was received in early March 2016 (see Appendix A). After securing consent from Punahou School (see Appendix B), initial teacher nomination questionnaires (see Appendix C) and supervisor/curricular leader questionnaires (see Appendix D) were emailed to teachers by division in mid-March with teachers being provided at least two weeks to provide nomination data for participant selection. Data collection (i.e. interviews) was conducted throughout the months of April and May 2016, which resulted in a total of nine teacher interviews and three curricular leadership focus groups and individual interviews with both school principals and the head of school (see Appendix E). More detailed information about interview methods is provided later in this chapter.

Demographic Overview of Punahou School

Punahou School was founded in 1841 and is currently the largest K-12 single campus independent school in the United States. Steeped in nearly two centuries of history, Punahou occupies a 76-acre campus at the steps of Mānoa valley on the edge of Honolulu, Hawai‘i. At the physical and metaphorical center of the campus exists *Ka*

Punahou, a fresh water spring, which lends its name to the institution and acts as the picturesque lily pond at the heart of the community. Officially, Punahou School is divided into two school divisions which includes the Junior School, comprised of students in kindergarten through grade eight, and the Academy, which hosts students in ninth through twelfth grade. Punahou's faculty population can vary from year to year, but during the 2015-2016 school year, 333 faculty members across the K-12 campus were provided an opportunity to participate in this study

Punahou School President, Dr. Jim Scott leads and directs the work of the administrative leadership team, which includes a variety of curricular and administrative leadership positions who oversee various needs across the K-12 campus. Each division includes a separate principal and different administrative and curricular structures. The Academy principal works in partnership with two assistant principals, eight grade-level deans, and ten academic department chairs. The leadership team in the Junior School include the principal, two assistant principals, six grade level supervisors, and a variety of curricular, grade level, and interdisciplinary team leaders. Informally, the Junior School is organized into three smaller groups including grades K-1, grades 2-5, and grades 6-8. These natural division points are reflected in this study by each grouping representing a separate case study. Therefore, case study # 1 refers to grades K-1, case study # 2 refers to grade 2-5, case study # 3 refers to grades 6-8, and case study # 4 refers to grades 9-12.

Selection of Collective Case Study Methodology

A collective case study methodology as outlined by Merriam (2009) was selected since the study sought to examine Punahou School at a divisional level allowing for each of the four divisions to serve as a separate bound system while examining the common phenomenon of innovative teaching practices. In each case, at least two full-time

classrooms teachers were selected per division (K-1, 2-5, 6-8, and 9-12). Although teaching practices differ at each level, this study sought to understand common values, motivations, and experiences that could be examined within each case as well as across the school as a whole.

Selection of Participants

In order to successfully study innovative teachers at Punahou School a criterion for innovation was determined, as well as a consistent method for selecting potential research participants.

Innovative teacher criteria. The establishment of a two-part selection criterion for this study was based off the desire to select teachers that were both considered innovative, but also whose innovation specifically advanced learning in the area commonly known as twenty-first century learning. As explored in Chapter 2, a similar criteria for innovative behavior was found in other studies (Thurlings et al., 2015) and originally established by Janssen "as the intentional generation, promotion, and realization of new ideas within a work role, work group, or organization, in order to benefit role performance, the group or the organization" (2003, p. 348). From this original definition the first selection criterion was established as "teachers who intentionally generate, promote, and realize new teaching practices on a consistent basis year after year." The addition of a consistent time frame of "year after year" was added to help narrow the field of potential participants to teachers that were considered the most innovative on an ongoing basis.

The second criterion to assist in the selection process of potential research participants focused on teacher innovation particularly towards twenty-first century learning skills. As outlined in Chapter 2, this study focused specifically on what Wagner

and Dinntersmith (2015) refer to as the Four C's of critical thinking, communication, collaboration, and creative problem solving. From this foundation a second criterion was established as teachers who regularly implement classroom activities that promote critical thinking, communication, collaboration, and creative-problem solving.

Selection process. Participants for the research study were purposefully selected through a process of collecting innovative teacher nominations from teaching colleagues within each division via an online survey (see Appendix C). These nominations were compared with nominations from supervisor/curricular leaders within each division that were collected through a separate survey (see Appendix D). During the teacher nomination process, teachers were asked to select up to five teachers within their division (K-1, 2-5, 6-8, or 9-12) that matched the previously discussed criterion for teacher innovation, and to also indicate on a scale of 1-4 their knowledge of this teacher's innovative practices. On this scale "1" indicated "I hear good things, but have limited knowledge of this teacher," and "4" indicated, "I know this teacher well and have seen their innovative teaching practices in the classroom." This numerical indicator was then averaged for each nominated teacher and is known as the "proximity" indicator, since it indicated how well, or how close, a teacher knows another teacher's innovative practices. Since the proximity indicator data was collected from a scale of 1-4, the highest average proximity a teacher could receive was a 4 and the lowest was a 1.

From these data, a list was tabulated indicating the number of nominations as well as the average proximity for each particular teacher and charted with the x-axis to indicate the number of nominations and the y-axis to the indicate proximity average. This allowed the researcher to create a chart of teachers who were indicated to be the most

innovative and well most known for innovation (proximity) by their teacher colleagues. This list and chart was then compared with the supervisor/curricular leader nominations to verify whether the results were consistent. From these two lists, participants for the research study were purposefully selected to reflect the highest levels of innovation as determined by both teachers and curricular leaders.

Grades K-1 participant selection. Two teachers from grades K-1 were selected to participate in the study based on the previously discussed criterion and selection process. Of the 28 teachers asked to participate in the nominations survey, 14 teachers submitted a total of 40 nominations that included 12 different K-1 teachers. A table of the top five nominations was created indicating that Teacher C and Teacher A had the highest number of nominations (see figure 1). Although Teacher C's proximity rating is the lowest among the top five list, this teacher's nominations were almost double the other teachers, and was also indicated by supervisors/curricular leaders as being in top three of innovative teachers in grades K-1. Teacher A was also selected using this same process, received a higher proximity rating, and was also nominated by supervisors/curricular leaders as being in the top three of innovative teachers in grades K-1.

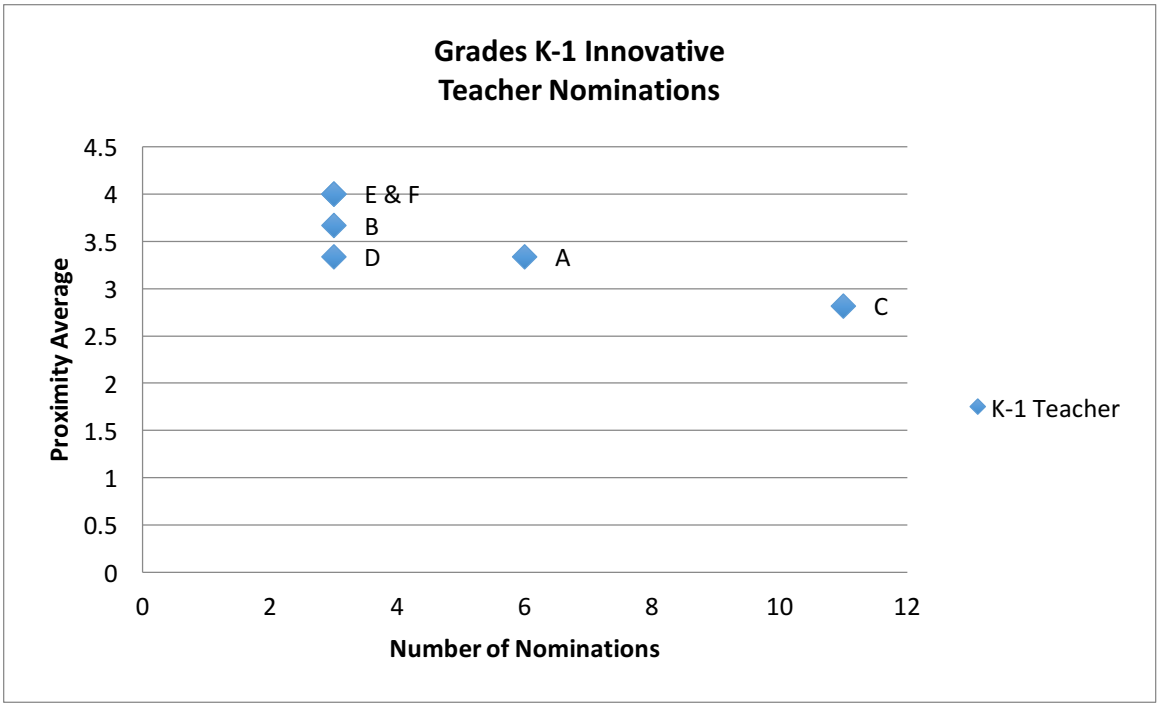


Figure 1: Grades K-1 Innovative Teacher Nominations

Grades 2-5 participant selection. Two teachers were selected from grades 2-5 to participate in this study based on the same selection criterion discussed earlier. Of the 48 teachers asked to participate in the selection questionnaire, 12 teachers responded and provided 41 teacher nominations that included 17 different teachers in grades 2-5. From this list, Teacher A was the highest rated by colleagues in grades 2-5 with 9 nominations and a proximity rating over 3.5 (see Figure 2). The second teacher selected to participate in the study was chosen from a four-way tie of 3 nominations and a proximity score of 3.33. To select the second individual from Teachers B, C, D, and E, teacher nomination data was compared with nomination results gathered from the supervisors/curricular leaders in grades 2-5. These data confirmed that Teachers A and B were rated as being the most closely aligned with the innovation criterion; therefore, Teacher A and Teacher B were asked to participate in the study.

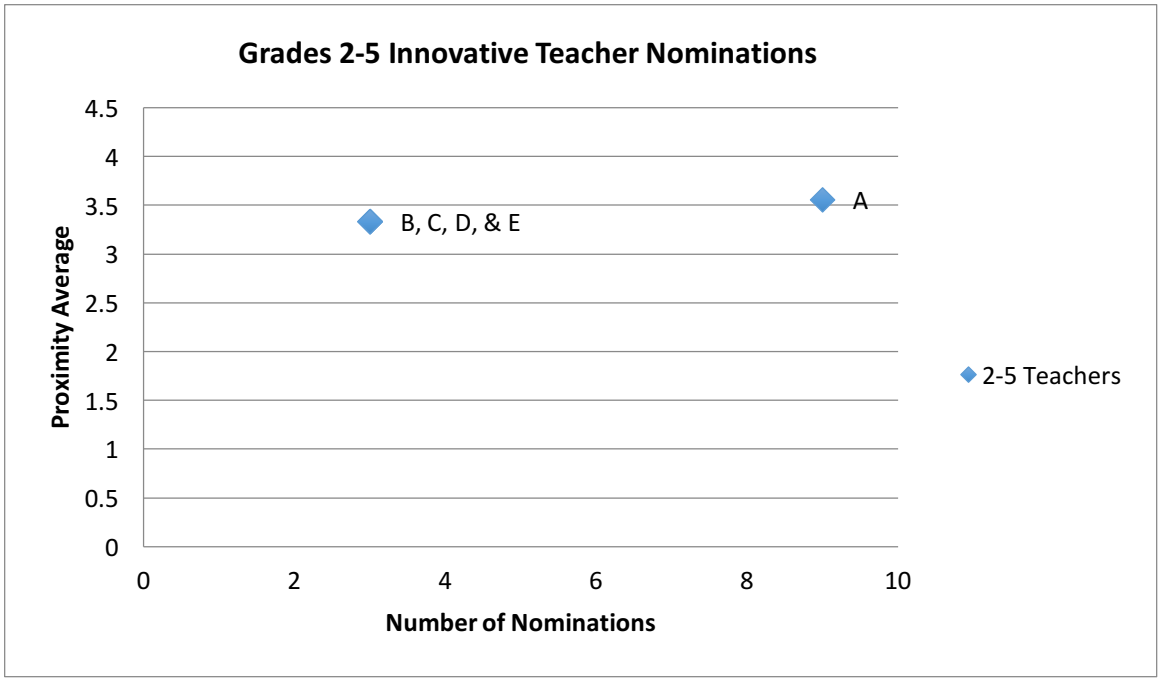


Figure 2: Grades 2-5 Innovative Teacher Nominations

Grades 6-8 participant selection. A total of 4 teachers from grades 6-8 were selected to participate in the study, including a two members from a teaching team. Of the 90 teachers asked to participate in the nomination survey, 30 teachers submitted 104 nominations (see Figure 3). Teacher D received the highest rating with 9 nominations and a proximity rating of 3.33. Teacher F was the second highest rated teacher and received 8 nominations and a proximity rating of 3.00. Finally, Teacher C was the third highest rated teacher receiving 7 nominations and a proximity rating of 3.57; however, in the interest of examining an innovative teaching team, Teacher C's close teaching partner was also invited to participate in this interview. Teacher C's teaching partner also received numerous nominations and was rated 5th overall with 6 nominations and a proximity score of 3.166. Similar to other case study participants, each of the four middle school teachers were also nominated via the curricular leaders nomination survey.

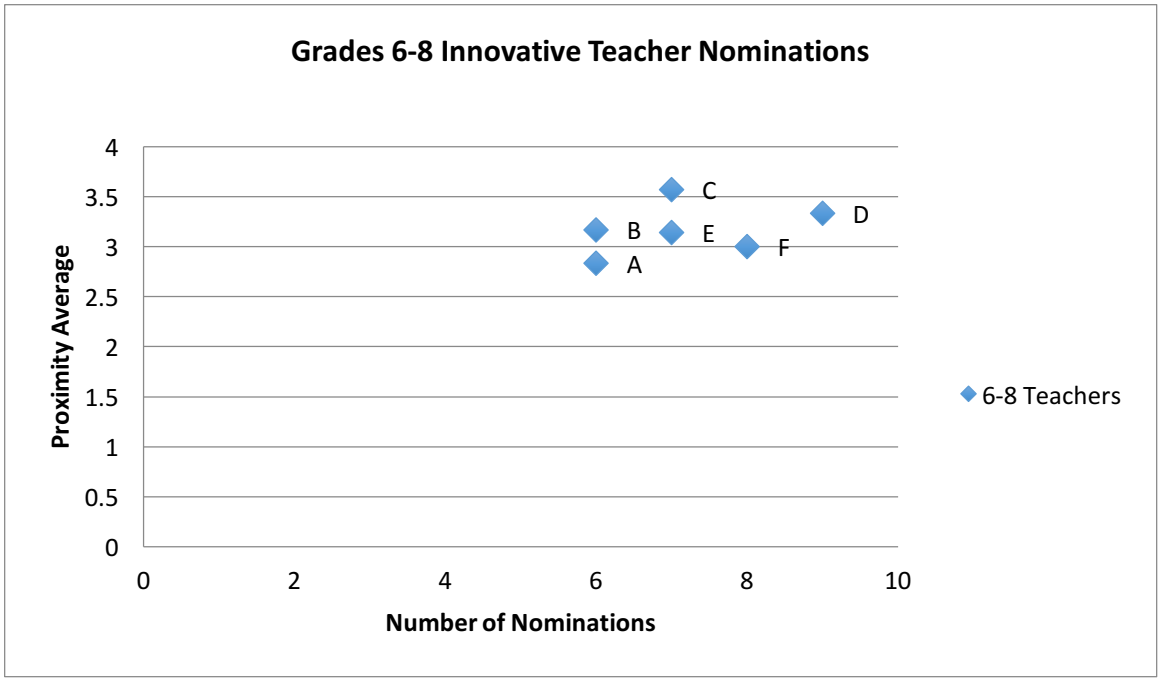


Figure 3: Grades 6-8 Innovative Teacher Nominations

Grades 9-12 participant selection. Two teachers were selected from grades 9-12 to participate in the study. Like the other participants in different divisions, they were nominated by peers using the same selection survey and innovation criterion discussed earlier. In total 167 teachers were invited to participate in the innovative teacher nomination survey, of which 24 teachers provided 73 nominations that included 42 different teachers. From this list, Teacher A was the highest rated with 5 nominations and a proximity rating of 2.4. Teacher B received 4 nominations and a proximity score of 3.5, while Teacher C also received 4 nominations, but a lower proximity score of 3. However, despite Teacher B's higher score, Teacher C was asked to participate in the study, because when comparing teacher nomination data to data collected from grades 9-12 curricular leaders, Teacher C was rated as being more innovative (see Figure 4).

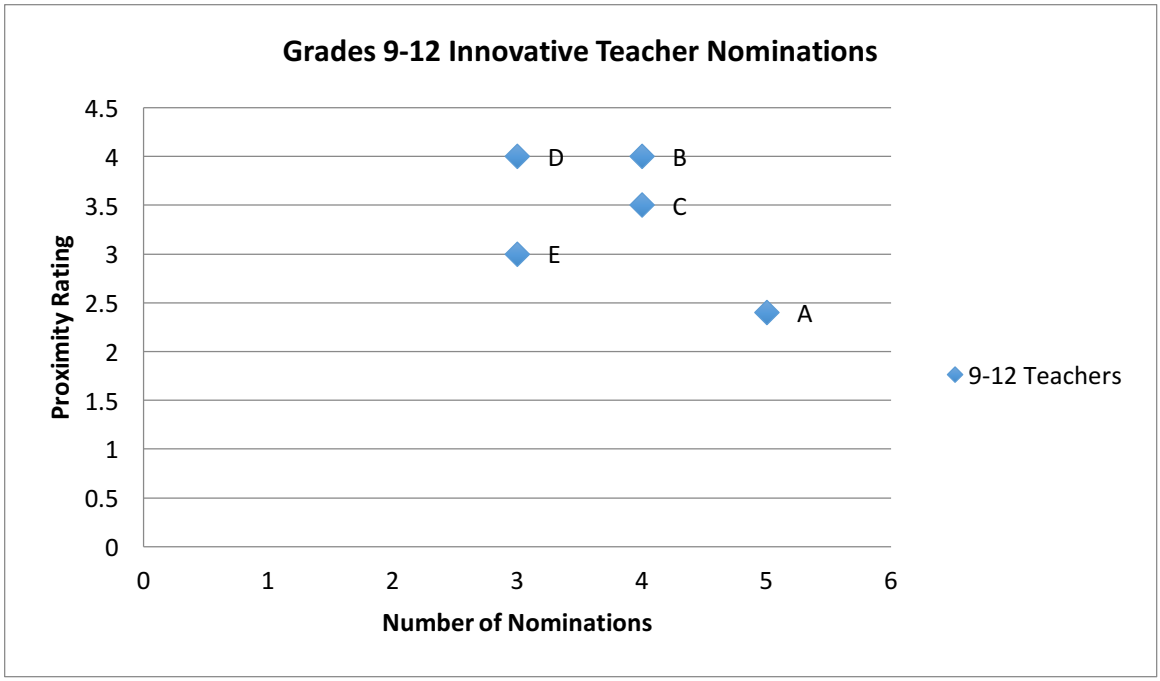


Figure 4: Grades 9-12 Innovative Teacher Nominations

Data Collection

Data for the study were collected through individual interviews with teachers and senior administrators and focus group interviews with supervisors/curricular leaders. Additional data were collected through a series of teacher selection questionnaires outlined previously in this chapter. The nature of the interviews and questions was standardized, as outlined by Merriam (2009), since "questions and the order in which they were asked [were] predetermined," although the interviewer was given the flexibility to ask clarifying questions as needed (p. 90). All interviews were recorded and transcribed so as to allow for deeper analysis during a coding process that established major categories, themes, and evidence to support the study's findings.

Teacher interviews. Individual interviews were conducted with each participant from each of the four divisions at Punahou School. This amounted to a total of nine interviews with innovative teachers across the school, including one interview with the

teaching team. Interviews ranged in length between 30 to 55 minutes and included nine predetermined questions.

Administrator interviews. Individual interviews were conducted with 3 senior administrators at Punahou, the head of school as well as the Junior School and Academy principals. Administrator interviews were conducted 1-on-1 and consisted of 8 predetermined questions, and lasted 30-45 minutes in length.

Focus groups. Three focus group interviews were conducted with supervisor/curricular leaders across the school. The focus groups included a K-5 Supervisor group, 6-8 curricular strand leaders, and 9-12 department chairs. The K-5 Supervisor focus group chose to meet together in lieu of separate interviews per division since these three individuals work closely together to support teachers in the development of their curriculum.

Data Analysis Methodology

In order to analyze and code the research data the researcher used a common coding and analysis method outlined by Hendricks (2012) to transcribe, code, and analyze the data gathered during the research study. The process included the following steps:

- Transcribe interviews and conduct member checks
- Code participants' names for anonymity and validity
- Study transcriptions to detect common research categories
- Study transcriptions and categories to detect emerging themes
- Analyze themes to answer original research questions

Transcribe interviews and conduct member checks. Shortly after completing each individual and focus group, the researcher transcribed the audio recordings of the

interviews into text. This transcription was then given back to the interviewee(s) for a member check. Participants were made aware that they could redact, add, or change any of the information provided during the interview to ensure their opinions were shared accurately.

Code participants' names for anonymity and validity. After the interviewees approved the transcriptions, a series of codes was developed to replace the names of participants as well as other specific identifying information mentioned in each interview. The list of codes was kept in a secure location and kept offline to ensure confidentiality.

Study transcriptions to detect common research categories. After collecting all the data from the interviews, the researcher began the process of reviewing the transcripts to develop categories to be used during the coding and analysis process. Initial categories were preselected as recommended by Hendricks (2012) including, setting/context, participants perspectives, ways of thinking, processes, activities, strategies, and relationships (p. 144). Since the study included fifteen different interviews and transcripts, MAXQDA, a software tool for qualitative research analysis was used to help sort and track common data across interviews in the same category.

Study transcriptions and categories to detect emerging themes. Once the initial review of the transcripts was complete, the researcher analyzed the data highlighted from the initial categories to develop common themes present in the data. Additionally, with the use of MAXQDA a research codebook was developed to support the fortification of themes by adding, subtracting, and merging common categories and themes in preparation for addressing the study's research questions. This process was used to

analyze overall emerging themes in the study, but also to examine case specific data within each division for later cross-case analysis.

Analyze themes to answer research questions. Finally, the researcher reviewed the major themes that emerged from the data and provided it as evidence to address the main research questions in this study. Special emphasis was placed on utilizing the data to examine both whole school themes as well as division specific findings at Punahou School. On this last point, a further examination of the data allowed for a cross-case analysis of the data across divisions.

Limitations of the Study

As with any research, numerous factors can place stress on the validity of a study including the scope of the study, and the bias and positionality of the researcher. Herr and Anderson (2014) describe this phenomenon as the "continuum of positionality" where a researcher's relationship with an institution ranges from an "insider" to an "outsider." Naturally, as an employee of Punahou School who is conducting research both within and outside of my main division of oversight, a variety of considerations are worth pointing out.

Scope of the study. The very nature of a case study methodology creates obvious limits in the transferability of the study's findings. These limitations not only apply outside of the institution in which the case studies are conducted, but given the size of Punahou School, this may also limit the transferability within and across divisions. However, with interviews being conducted with both teachers and administrators and within four case studies, it is likely that major themes that surfaced across the study will prove relevant to the school's discussion around supporting teacher innovation.

Clarifying and validating innovation. Although efforts were made to develop clear instructions to go along with selection criteria, it is possible that survey participants could have still misinterpreted the selection criteria. It is also possible that the process of selecting and ranking teachers for innovation could make some teachers uncomfortable. Therefore, it is possible that more overt effort to work with curricular leaders to educate or craft the wording of the selection materials may have mitigated some of the discomfort that was indicated by a few teachers. It also could have been helpful to explicitly distinguish that teacher innovation is only one facet of quality teaching, as it may have been possible for some teachers to assume or interpret the two to be synonymous, which may have resulted in confusion amongst the faculty. Additionally, no efforts were made by the researcher to visit or observe the classrooms of participants selected for this research study. Although as outlined in Chapter 3, nominations from teachers were verified against the nominations of curricular leaders and administrators within each division as a form validating nominations.

Threats to Validity

Researcher bias. Perhaps not surprisingly, as a teacher and educator my philosophical views on teacher innovation align strongly with much of the researchers cited in the literature review from Chapter 2. Therefore, my bias on this matter presumes that schools should foster and advance twenty-first century learning skills and support the advancement of teacher innovation. In order to account for this epistemological viewpoint, specific steps have been developed in the methodology to check this bias, including a thorough selection process of the participants that utilized teacher nominations, and a clear data analysis process, both of which have been previously outlined in this chapter.

Positionality. As an administrator within the middle school at Punahou it's important to mention that I have both direct and indirect oversight of a number of the individual and focus groups participants in the study. Although I like to think that in my role I model a spirit of openness and collaboration, it's possible that some of the participants may have felt uncomfortable addressing issues that could be viewed as relating to my role or the role of other administrators. I believe that this is a tradeoff that comes with being an "insider;" however, as outlined previously in this chapter, all participants were guaranteed confidentiality, allowed to remove or change anything mentioned in an interview, and reminded that their participation in the study was completely optional. It's my hope that these specific practices accommodated for a trustworthy environment in which to conduct this study.

Data Analysis

The following chapter contains the analysis of each of the four case studies examined in this research study. Additionally, Chapter 4 is divided into sub-sections that represent each case and include a demographic profile that provides specific demographic information about each case, a within case analysis, and a case summary. A cross case analysis is also included and examines common and contrasting themes across the four cases. Throughout the analysis process, as outlined in Chapter 3, important themes emerged within each case and fell into the following categories: experiences and motivations that impact innovative teachers, coming to embrace innovative teaching, and organizational mechanisms that impact innovative teaching.

Case Study One: Grades K-1

Demographic profile. Case Study One was comprised from individual interviews with two innovative teachers from the Omidyar K-1 neighborhood, as well as a focus group interview with administrators/curricular leaders from the K-5 division. Opened in August 2010, the Omidyar K-1 neighborhood serves the youngest learners at Punahou School with 150 kindergarteners and first grade students per grade. Each grade is composed of 6 studio classrooms, with a lead teacher and assistant teacher serving 25 students. As outlined in Chapter 3, participants in Case Study One include one kindergarten teacher and one first grade teacher.

The following section discusses a number of important themes that surfaced in Case Study One from teacher participants and K-5 administrators. These themes have been categorized into the areas of experiences and motivations that impact innovative teachers, coming to embrace innovative teaching in grades K-1, and organizational

mechanisms that impact innovative teaching in grades K-1. Additionally, a summary is provided at the end of this section.

Experiences and motivations that impact innovative teachers. Participants in the K-1 case study were asked to describe how various life experiences have impacted their teaching practices. Each participant described a number of important experiences as well as important motivations that were key to driving the work and innovation of these teachers.

Upbringing and transferring values. Participants in the K-1 case study cited numerous examples of how their upbringing and other life experiences impacted their innovative pedagogy and has led to the presence of a variety of important values in their classroom. In particular, K-1 participants discussed their values of promoting student independence, providing opportunities for risk-taking, as well as deliberate methods to enhance student critical thinking, and how they intentionally sought to develop opportunities for these values to be transferred to their students.

One participant shared how his experience of risk taking had shaped this perspective, stating "[taking risks has] led me to such cool places. I want my kids to have that same experience in class. You've got to take a risk. You've got to problem solve…and see where it takes you." This participant went on to add that experiences supporting themselves as a college student had instilled a desire to teach independence, adding:

> What I value is independence and being able to do things on your own and following your passions. I feel because I had that experience [in college],

> in my classroom that's what I value. I want the kids to be independent thinkers and independent learners.

This point was emphasized again by the other participant who shared:

> I need to give them independence. I need to teach them how to make decisions so that they can [choose] for themselves instead of me just controlling everything that goes on. I need to step back and give them independence and believe that it will turn out well.

Empathy for Students. A notable theme that emerged in the K-1 case study was the participant's empathy for their students. This empathy manifested itself in many ways, but at its core it may be described as teacher practices that are designed to suit the developmental and environmental needs and interest of the students. One K-1 teacher described how empathy for students has been a motivation to create learning experiences that foster a joy for learning, adding:

> I've always been one of those people that just enjoys the wonder of children, and I think that's why kindergarten has ended up being a place that has pulled me, because it is that absolute joy in every day, and that freshness about what they're learning, that's exciting to me.

Both teachers in Case Study One spoke how empathy to see their students have fun and engaged in learning has impacted how they prepare for class and their overall values as a teacher. One participant described an example of how the value of empathy has impacted instruction by sharing this story:

> There was this day that was probably the best day of the school year [in the K-1 neighborhood] in terms of my impression of all of us up here. It

> was pouring rain in the fall; just coming down in buckets. I think about six of us threw out our plans at 9:00 am in the morning and went out in the rain. The kids put on their rain jackets, or not, and we went out. They slid in the mud and they made dams and they were absolutely drenched. There were kids just jumping in the puddles. We looked around and realized, we had all thrown our plans out the window, and just said, "never mind." This is such a [rare] opportunity for downpour rain…you just don't get that all the time. I thought, "good job everybody," that we just said, chuck it. We can write tomorrow. We can do math tomorrow, because otherwise [the kids] are not going to get this experience. Their mothers all send them inside, [and say] "oh, we don't need to get wet," and so we take them out.

Another example of empathy for students was described by a participant as providing the K-1 students a voice in decisions and conversations within the classroom and across the campus. The participant pointed out, this is something that can be overlooked since these students are the youngest and smallest students on campus. This teacher explained this value when sharing, "these are small people, but they need to have a voice in their community. My value is that I need to bring that voice forward. I need to help them become a member [of our community]."

Relevant experiences. Participants in Case Study One described how their experiences and motivations as a teacher were in part impacted by their commitment to developing relevant, experiential, and personalized learning experiences for their students. One teacher noted the importance of embedding learning in student experiences, sharing "everything's so abstract for them. Anytime we can make it more concrete and be

able to ground it in something they've done, we have a better shot at [growing the child]." This teacher went on to described an example of this breakthrough from abstract to concrete, when sharing:

> If you ask a kindergartener, "What do you want to know about mauka?" You're not going to get anywhere. We'll take them out, we'll take them to a loʻi, and we'll take them on a hike. Then we'll start saying, "what are your questions? What are you wondering about?" And we'll listen, and then we'll go from there into the next [activity]. We don't plan our whole year. We'll plan those experiences and then we'll run with that. Then we'll see, "Oh, okay clearly [this means] we need to do this" and then we'll go from there.

Another K-1 teacher described the value of harnessing student interests to develop relevant curriculum when sharing, "if it's an app they've all been talking about, or a game, or a movie, or something [similar] I'll try to find a way to relate that [to the lesson]."

Developing community with students and parents. Schools are often described in terms of community and family. In Hawaiʻi it's not uncommon to hear ʻohana, the Hawaiian word for family, used to describe the relationships that are developed amongst members of a school. This is true at Punahou and is another value that has impacted case study participants in the K-1 neighborhood. One participant described the motivation of developing community through creating opportunities to include parents when sharing:

> There's a personal-ness to what I do with children that goes into the relationship I have with parents. I think that parents are a key player in children's education…I believe in engaging parents, so our parents come

> with us, their grandparents come with us on all of our trips…If children are painting, we ask the adults to paint too. If children are writing poetry, the adults are writing poetry. Because again, I think that relationship and that empathy piece are key to the child's learning. If I can get their family involved and I can get their family to understand why are [their kids] doing the crazy things [they] do? That's going to support their child's growth.

Coming to embrace innovation in grades K-1. Participants in Case Study One described a number of different ways that they came to embrace and continually evolve their innovative teaching practices. Each participant described how their practices have evolved over their career and what mechanisms have played a role in inspiring their innovative work.

Evolution of teaching practice. Both participants in Case Study One shared the evolution of their teaching practices and described how content knowledge and teaching experience were critical factors in supporting their innovative practice. One participant discussed this process, adding:

> After around ten years [of teaching experience] I just became comfortable. Just comfortable that [I could] do this…I think how it's evolved, it just took me about five or six years to get really comfortable with the content and the pedagogy. When I came to Punahou, it was just the right time. It was the right job at the right time in my teaching career, so I could really learn about these new twenty-first century tools and techniques, but my

> pedagogy and content knowledge were strong so I was able to seamlessly and really easily start integrating things to make a difference.

Another participant described a similar experience that it took both time and experience before she felt comfortable trusting her innovative potential. They described this experience, sharing:

> Over the course of years…[I] learned to trust [my] own practice, then it was like, "You know what, my kids are fine. My kids are getting the pieces of curriculum that [they're] supposed to be getting. I don't need to stay [so] traditional…and [can] move further and further away from that."

It's worth noting that both participants described a need to become comfortable with the content that was expected to be delivered before they felt comfortable seeking ways to adjust and be innovative with the curriculum.

Embracing student inquiry to lead innovation. In addition to the important role that experience plays in the process of teachers becoming more innovative, a significant mechanism noted by K-1 participants was the willingness to embrace student interest and inquiry as a driver for curricular innovation. One K-1 teacher described the unique and engaging ideas that came from the students when their interests were placed at the forefront of curricular decisions when sharing:

> I trust the kids, because there's a certain depth to children and there is a certain desire that if you really give them some opportunity and really trust [them] you're going to get good questions. If you cultivate that, your kids will take you in an amazing direction that you never even thought of [before].

Participants discussed the natural challenges and opportunities associated with this partnership in learning since it requires teachers to be open and flexible in their curricular planning year after year. One participant described this challenge when sharing:

> Every year the children are different, and their interests are different, and their questions are different, or their difficulties are different, and so you can't do the same thing every year or you will miss those children that come to you differently. I find that a challenge.

Despite the challenges, participants in Case Study One are committed to embracing the interests of their students to drive learning.

Professional learning and gleaning from others. Participants in Case Study One shared the trait of highly valuing school-provided professional learning, as well as any opportunity to glean ideas from other teachers to advance their innovative teaching practices. A participant described their attraction to connecting with others around campus by sharing:

> I'm a social person by nature, so again it's that aspect of being interested in what's happening outside the walls of my classroom. Seeing what people are doing in the K-1 neighborhood and then getting opportunities to talk with other people on campus and seeing and visiting their classrooms. I get really motivated by seeing what people are doing.

Both participants discussed the strength of Punahou's professional learning funding for individual professional growth. One participant shared how "[Punahou's] really good about letting you, if you're passionate about something or you find a conference, they have the means and they have the willingness, and they will actually encourage you to go

out there and see it." Additionally, participants found school-provided learning opportunities and visiting scholars as important mechanisms for impacting their innovative practices, but added that it's more impactful when these resources are coordinated with clear school goals and built on longer relationships versus "snippets."

Organizational mechanisms that impact grades K-1 teacher innovation. Participants in Case Study One described a number of important institutional mechanisms that had both positive and negative impacts on their innovative practices. The mechanisms that surfaced the most included both structures and institutional practices in the school, as well as references to subtler but powerful cultural influences that can affect the climate of innovation at Punahou.

Professional learning. As mentioned in the previous section, Punahou's commitment to funding professional learning for all teachers, as well as targeted initiatives and visiting scholars, has had a positive impact on the ability of innovative teachers to grow and develop their practices. Recently, the administration in the K-1 neighborhood coordinated professional learning around advancing common practices in mathematics through the work of visiting scholars Cathy Fosnot and Jo Bowler. Participants in Case Study One reported the success of this coordinated initiative by sharing, "I think people feel more and more comfortable because they feel like they have more resources to make it feel like they know what they're doing. I think that's useful." It's worth noting that the origin of focusing this work in the area of math, at least in part, came from administrators recognizing that too many school sponsored professional development experiences were not having an impact on shifting classroom practices. Therefore, with the support of Junior School administrators, teachers in the K-1

neighborhood embarked on developing a math-centered professional learning community (PLC) to help focus teacher professional development and move an innovative practice across the grade level.

Participants in Case Study One validated the observation by administrators that school sponsored professional development was less helpful by adding that these experiences and visiting scholars had often not been well supported beyond the initial learning experience. Supporting this feeling, an administrator in the Junior School added, "we're hearing from teachers that there are too many initiatives going on." Although, one participant added that this type of professional development is more helpful when the school has invested in developing a long-standing relationship with a visiting scholar, where they've visited with many teachers frequently over a number of years, thus helping the teachers to become much more familiar with the practices that have been promoted by this individual.

Teacher accountability. Building off the challenges to successfully coordinate school initiated professional learning, participants shared that the administration has been unable to hold teachers accountable to newly promoted student-centered practices and teacher innovations. One participant shared their experience when saying:

> There's this piece where teachers here at this school have had this autonomy to teach the way they want, and if there is a new idea or some new practice that would be very beneficial, it gets talked about. They might bring the person in to do some training, or a speech, or a talk, but then after that there's not much else. The teachers could either choose to go that route or they could ignore it completely, and there's not this

> accountability piece. I kind of feel like there needs to be a strong leadership focus in that innovative thinking that it's going to almost not force innovation, but really encourage it.

Administrators in the K-5 division confirmed this challenged explaining that often they struggle to support teachers who are unmotivated to adopt new teaching practices by adding:

> For some of [our] teachers, it's motivation. They don't want to do it. They're not motivated to do it…We offer them resources, they have gone to conferences...we've bought them books, we bring people here, but [what else can we do] if that motivation to want to engage and move [the idea] forward isn't there?

This statement highlights a potential weakness in Punahou's teacher evaluation program as well as its ability to focus around shared and desired teaching practices. On this point, one K-5 administrator alluded to how a broken evaluation program can lead to teacher confusion adding, "[some teachers may assume] they're doing a good job because they still have a job here." When in actuality, a teacher's continued employment may say little about their effectiveness in the classroom.

Teacher autonomy. As mentioned earlier, holding teachers accountable to teaching practices the school hopes to adopt has been unsuccessful, which is in part due to inconsistent follow through from professional learning as well as the administration's inconsistent efforts to hold teachers accountable. However, this issue also stems from Punahou's tradition of allowing teachers great curricular autonomy in their classroom. One participant described this perspective by sharing:

> I think teachers have been perfecting [their curriculum] so long, and have owned it for so long, that sometimes they're protective of those ideas and don't necessarily want to share them because they've worked so hard to develop them themselves, but it's also just makes change hard for them because they've worked so hard and had this autonomy for so long and now they're being asked to change.

Although teacher autonomy can certainly lead to teacher innovation, this participant's perspective points out a troubling byproduct that teacher autonomy can create an environment where teachers can become very attached to the curriculum they have developed, and therefore, become slow to embrace change.

Time and Schedules. K-1 teachers at Punahou have incredible flexibility to adjust their schedules to accommodate for a variety of activities in their curriculum. One teacher described the benefits of this flexibility when remarking:

> I can take my children outdoors to play when it suits our needs. If they're wiggly and we need to go out at 9:00 am because their bodies are ready to go, we can go. If we would rather wait till just before lunch, because we're in the middle of something great, we can wait.

Still, participants also commented that despite this flexibility the time students are away from class with non-integrated specialist could detract from innovation. One teacher described an alternative to this model explaining, "in my dream world, we wouldn't have specialist classes outside, those specialists would come with us, and it would be completely integrated into the whole." It's possible that more adjustments to structure could lend itself to supporting curricular integration and teacher innovation, but one K-5

administrator pointed out that there have been dramatic changes to schedule, spaces, and other supports in the K-1 neighborhood, yet still "[it's like] pulling teeth. I've had to cajole, persuade, and argue…to get people to do what they're supposed to be doing."

Innovator backlash. Although participants in Case Study One did not overtly suggest that they have received pushback or backlash from colleagues due their innovative work, they made it known that at times they found it challenging working in an environment where teacher autonomy and problematic accountability had led to some teachers resisting change. However, a K-5 administrator was very clear that in addition to teachers resisting change or innovation, some teachers also would chastise other who embraced various changes and new ideas. This administrator went on to add that they've seen this backlash at different times by adding "Even though [these teachers] are doing excellent things…they're presenting and they're getting recognition, [other teachers] don't accept what they're doing because they think they're putting themselves, as an individual forward, rather than them and their colleagues." This administrator went on to add how this culture of backlash can be especially frustrating, sharing "[we] get a few that are doing [a desired innovative practice], and then they're ostracized [by other teachers] because they're doing it."

Case study one summary. Interviews with participants in Case Study One surfaced numerous themes that lead and influence the work of innovative teachers. These themes were best categorized in the area of past experiences and motivations that influence innovative teachers, ways in which participants have come to embrace innovation, and organizational mechanisms that impact teacher innovation. Among a number of important themes, participants discussed experiences in their upbringing and

transferring values, and empathy for students as having an important influence on their classroom practices. In particular participants discussed the importance of experiences in their upbringing having a significant impact on how they teach and view the school experience. These experiences also supported the practices of transferring values, including risk taking and independence, which these participants now see as important to pass on to their students.

Participants also shared similar motivations that have impacted classroom practices that can best be described as empathy for students. This includes developing a classroom environment and experiences with the student's perspective in mind. An example of the impact of this phenomenon was shared by a participant who described skipping an indoor lesson in order to give kindergarteners a chance to play and explore in a heavy rain storm. One participant also discussed that ensuring a student voice in decision making, especially across the campus, has been an important component in their empathy for students.

Both participants in Case Study One discussed how they've come to embrace innovation and shared how their career has evolved and the importance of student inquiry and professional learning opportunities as being critical to their continued growth as an innovator. Participants discussed the importance of embracing student inquiry to lead innovation, and did this through trusting learners and personalizing much of their curriculum every year to meet the specific needs of each student and class. As an example, one participant describe how the simple act of encouraging student questions has helped propel classroom activities that align with student interest and inquiry.

Participants expressed value in opportunities for professional learning and

gleaning from others to help lead innovation. It was clear that both participants placed a lot of effort on learning from others and through professional learning opportunities at Punahou. Participants shared the importance of having access to professional development through utilizing their professional development allowance as well as participating in opportunities on campus with experts and visiting scholars, especially those who have been invited to return numerous times.

Participants in Case Study One discussed a handful of organizational mechanisms that impact their innovation in the K-1 neighborhood. Additionally, a focus-group interview with K-5 administrators/curricular leaders confirmed and revealed the impact of other organizational mechanism, including professional learning, teacher accountability, and teacher autonomy, as well as the phenomenon of innovator backlash.

As mentioned previously, professional learning support was cited as an important mechanism for advancing teacher innovation. In particular, professional learning that has been organized around a common goal, in which all teachers participate, has been especially helpful at advancing innovative practices. However, participants and administrators both noted that Punahou has not regularly been successful at developing professional learning opportunities in this way, and often ideas promoted by visiting scholars have seen little additional support and follow through.

Participants and administrators also discussed the challenge of advancing innovative ideas because there has been little teacher accountability when trying to advance innovative practices. One administrator described this as a problem of motivation on the part of the teachers, which would suggest weaknesses in the current teacher evaluation program.

Challenges with teacher accountability and evaluation may also be related to a culture at Punahou that highly values teacher autonomy. Participants shared that teacher autonomy was important for their innovative work, but this practice could also create a culture where teachers are under-supported and cling to curriculum that they have worked especially hard to develop.

Finally, K-5 administrators mentioned that they see innovator backlash from some teachers towards the more innovative teachers in the K-1 neighborhood, and that this stems from a culture that can grows suspicious of colleagues who become known for promoting and regularly experimenting with innovative teaching practices.

Case Study Two: Grades 2-5

Demographic profile. Two participants from grades 2-5 at Punahou were selected to be a part of Case Study Two. The following analysis was constructed from individual interviews with each participant as well as data added from a focus group interview with three K-5 administrators/curricular leaders. Each participant is a teacher in a different grade level within the division, and was selected using the purposeful selection process outlined in Chapter 3. The grades 2-5 division includes a total of 700 students with 150 students each in grades 2 and 3 and 200 students each in grades 4 and 5. The grades 2-5 division is comprised of 49 teachers and two grade level supervisors who operate as the main administrative team for students, teachers, and parents. Each supervisor supports two alternating grades levels, for example, one supervisor will support grades 2 and 4, while the other supervisor supports grades 3 and 5. However, since supervisors follow students within a particular graduating class through grades 2-5,

the supervisors alternate which grade level they work with directly each year as their students progress through grades 2-5.

Experiences and motivations that impact innovative teachers. Participants in Case Study Two were asked to describe how life experiences have impacted their teaching practices. Additionally, a number of motivations and practices were identified as key to driving the work and innovation of these teachers.

Childhood experiences as a student. Classroom experiences as a child have played a major role in shaping the innovative teaching practices of one participant in Case Study Two who shared, "I had some really good years in elementary school, and I had some terrible ones [too]. Those terrible experiences shaped what I do today as much, if not more, than the good experiences." This participant went on to describe their experience in school in more detail when stating:

> I don't remember hardly a thing that I learned in elementary school. I don't think I had projects or any deep learning experiences. I remember a lot of workbooks, I remember a lot of tests, I remember a lot of lecturing from teachers, almost zero group work, zero creativity, and it's almost as if creativity was not valued at all when I was in school.

This participant sums up how these experiences have become an important value in their classroom by adding:

> What constantly shapes my beliefs and my practices is just this idea of what would I have liked, how I would have thrived in [elementary school], because I had a very traditional…elementary school experience, all female teachers until sixth grade. I remember sitting wildly bored in class, wildly

> unengaged in class, wondering why school was like this. What I try and give my students is almost the opposite of what I experienced in school.

Describing how this experience has shaped this participant's view of the classroom, it is clear that empathy for a student's day-to-day enjoyment and careful nurturing of a student's energy and interests towards school have emerged from this participant's experiences.

Empathy for students. Participants in Case Study Two cited a number of examples of how their practices were affected by their empathy for students, mainly through fostering a joy for learning and a constant commitment to supporting students when they struggle, while maintaining a commitment to student growth for all. One participant expressed this motivation when sharing:

> If you remember what it's like to be an [elementary school student], and if you can empathize with your current [students], it will lead to innovation. I don't think you can empathize with students and keep them in workbooks all day and test them to death with bubble tests.

Sharing how this leads their practice to fostering a joy for learning this participant went on to add:

> I want my classroom to be 51% fun and 49% learning, because that 49% will stick so much more if [the students] want to come. If it's 51% fun, they want to come. They wake up in the morning and they want to come. Kids like craziness, they like fun, they like humor. I think when you empathize with the students and what their worlds are like and how coming to school can either be the biggest bummer in the world or a huge

> joy in their life, that just leads to you being innovative. If you want them to enjoy school as a joyful place, I don't think a teacher would ever settle on a traditional classroom.

A similar sentiment was expressed by the other case study participant who explained that part of their strategy for developing joy in the classroom has been to be expressive about their passions and curiosities as a teacher. Ultimately, this was with the goal of "making learning fun, making it meaningful, [and] making it relevant for [the students]."

Of course, not all moments in a classroom are fun, especially for a student that is struggling. Both participants in Case Study Two shared how their empathy for students, when learning is difficult, motivates them to care for their students and innovate when necessary. For one participant it is clear that this care for students is central to their innovative practices, sharing through tears that:

> The hardest thing is when I see children struggling and giving up and I want to be able to help them overcome that. That's what drives me the most. I'm constantly looking for research or different things that can help in that way.

For this teacher, this trait connects with a theme they have seen present throughout their entire life, which they described by sharing, "throughout [my life], empathy has been a huge part of it and [finding] how I can help others. That is one thing that really leads me."

In addition, seeking ways to motivate and inspire struggling students, the participants in Case Study Two both shared how this commitment expanded to personalized-learning strategies that would develop the strengths and interests of all of their students. This strengths-based approach was expressed by one teacher when sharing:

> [I've learned] everybody has strengths and [I ask] how can you leverage those strengths, because I think when children see themselves as not having strengths that's when they give up and that's what you don't want in learning. [Instead] you want [students to see] that we all have different paths in how we learn.

This participant concluded that by leveraging these strengths, and being empathic to the student's individual inquiry and passions, they are spurred on to innovate in order to be able to best reach their students.

Coming to embrace innovation in grades 2-5. Participants in Case Study Two found inspiration to innovate in their classroom from some common and differing places. Both participants described the importance of surfacing student inquiry and interest to drive learning, as well as the impact of current trends and research in education. Additionally, a fondness for new ideas and experimentation in the classroom has led each participant to innovate

Evolution of teaching practice. An important similarity between both participants in Case Study Two was an openness and commitment to constantly grow and evolve their teaching practice. One participant shared how the value of self-reflection has influenced many aspects of the learning that has been delivered in the classroom. They also described how collaboration and the practice of students checking work and consulting with others has become more important in order to develop a student's capacity to think flexibly about multiple ways to approach an activity or to even answer a math problem. The second participant expressed a similar evolution in practice by using technology to support student writing to cultivate an authentic audience for feedback. This participant

described an example of this evolution, sharing "when we were in school, we had one audience [for our writing], it was just the teacher…Now, with the laptops…the audience is me, plus 24 classmates, on almost every writing assignment they do, and that's a game changer."

In addition to this example, both participants shared how throughout their career they had noticed different times when they found their practice evolving in a different direction then more traditional teachers with whom they worked. For one participant it seems this connection to innovation was apparent from the beginning of their career. Describing an experience about their first teaching position this teacher expressed with pride:

> [When] I got out of grad school, I was in a public school and I had a curriculum handed to me. I was supposed to be on the same page as the teachers…[but] I quickly realized there was a different way to do things.

This participant went on to share that throughout their career, at a number of different schools, they've been asked to fall in line with the teaching practices of the other teachers, but inevitably developed a reputation for doing things differently, or in the words of the participant, "I was just incapable of doing that," and developed a status of "going rogue" at every school.

Embracing student inquiry to lead innovation. Participants in Case Study Two were careful to emphasize the importance of student interest and inquiry for leading innovative practices in the classroom. Both participants demonstrated this commitment to student inquiry through descriptions of projects that were initiated through student interest and supported through practices like genius hour, a growing trend in education

where students are given time in class to cultivate their passions, curiosities, and interests. One participant described the benefit of setting students free to lead their learning when describing how students bounce back from failure and improve in future iterations of their work, adding "for many of [the students], they've learned a lot from the mistakes [from their first attempt]."

Current research and trends in education. Both participants shared affection for following current research or trends in education to improve their innovative teaching practices; however, the motivation for the use of these external resources differed between the participants. For one participant it was the use of research to investigate and problem-solve specific student learning difficulties that was the main motivator. This participant shared how they would use this research for the basis of learning experiments in the classroom, stating, "I think seeing what works for children is another [inspiration]…if you are passionate about trying these different [research-based strategies], you have to take the time to do it." This participant weng on to describe an iterative process of research and experimentation, sharing "I'll try things out, and I'll see what worked, what didn't work, [and ask] 'how can I tweak it so that it will be better?'"

While for the other participant, their use of research and current trends came more from a personal disposition to take risks and innovate for the sake of experimenting with new ideas in the classroom. This participant described this experience when they shared, "I'm always innovating something. The last couple years it's been coding, [and the] maker movement." However, in addition to exploring these trends, a simple curiosity about exploring how far students can take their learning in this teacher's classroom, particularly in the area of coding, was very inspiring. A self-professed risk taker, this participant

described how this identity has led their teaching because they "like being out ahead of the group and fearless when it comes to risk taking."

Organizational considerations that impact grades 2-5 teacher innovation. Participants in Case Study Two cited numerous organizational mechanisms that have impacted effective teaching in addition to the innovative work they strive to add to their classroom. The impact of these mechanisms vary in both positive and negative ways and at times have had a differing impact between participants, but are most noted in the areas of professional learning, teacher accountability, teacher autonomy, and time.

Professional learning. Participants in Case Study Two cited Punahou's commitment to providing relevant professional learning opportunities for its teachers as an important aspect to their personal professional development. Additionally, the very notion that Punahou has allocated funding towards securing various resources and prominent visiting scholars that represent current trends in education to visit the community is an indication of the school's dedication to learning. Still, participants noted that unclear learning goals and poor or little follow up around these professional learning events was frustrating, since it often meant that little would be expected of themselves or others, and few resources would be provided to help advance some of the ideas shared by these scholars. One participant described this experience, sharing "if the school's going to move [forward] with these innovative ideas then there needs to be more [support of] practice…because that's been the biggest frustration for a lot of teachers right now…that there was no follow up."

This perspective was validated by K-5 administrators/curricular leaders who expressed similar challenges, and submitted that this issue may stem from a number of

complexities including the school size, diversity of ideas and practices, and the school's ability to fund a number of professional learning opportunities at any given time. One K-5 administrator described this phenomenon as a need for focus when adding:

> I think sometimes our size and our complexity lends to an overwhelming amount of innovation. I think going forward if we can help [provide] focus...whether it's having one to three things that we're going to focus on, as an institution, or in a division, or as a Junior School, I think that would lend itself to teachers feeling rock solid before we move off of that innovation, towards something else... because I think that, when we jump from one thing, to the next, to the next...it doesn't help to build that foundation that we need to have, in order to incrementally [move forward].

However, since teacher autonomy is highly valued at Punahou, it's likely that some of these professional learning experiences are presented without expectations, and instead as an opportunity for the school to promote ideas that align with the school's values. Still, participants in Case Study Two demonstrated frustration with the school's inability to mobilize and coordinate support to advance innovative professional learning ideas that the administration clearly wants to see more teachers adopt.

One K-5 administrator discussed challenges around awarding learning grants to teachers through the Punahou professional learning grants and fellowship program, as it can cause resentment amongst some teachers. This administrator described this challenge when adding:

> We see a lot of the same names applying year after year, and so they continue to thrive. Yet, I think, in our community that we work with, not to say there's resentment, necessarily, but there are those who wonder, "Why is it that always those people are highlighted? Why is it that they always get the funds? Why is it that I don't?" That dilemma is...wanting to highlight the innovation, but how might we be able to support the others to move in that direction [too].

On this last point, the balance between supporting innovative teachers who advocate for their professional learning needs without ostracizing these people from the rest of the community adds to the complexity in advancing innovative ideas amongst the entire grades 2-5 division.

Teacher autonomy. School culture at Punahou places a high value on a teacher's freedom to develop curriculum for their students as they deem fit. Moreover, it's partially this autonomy that has allowed for the innovation championed by participants in this study, let alone those in Case Study Two. A value for autonomy has been echoed by both participants who describe this freedom as an important ingredient that allows them to constantly innovate, take risks, and personalize instruction by iterating research-based instructional techniques for their students. So it's with a bit of irony that study participants share how this autonomy cuts the other way and limits a grade level or the grades 2-5 division from coordinating and advancing innovative ideas. As mentioned previously, K-5 administrators validated this challenge, noting that serving teachers in an autonomous environment can make focused professional learning opportunities difficult.

One participant provided a possible reason for why Punahou's commitment to autonomy can slow progress when sharing "at a school like Punahou, I think you have so many capable teachers here who are very strong about their feelings, and what they feel works, that it's sometimes hard to bring that all together." This participant went a step further framing the challenge around the personalities of the teachers when adding, "that's probably the most difficult thing in moving innovation forward are those strong personalities and trying to get them to see value in different ways." Another description for how the mixture of autonomy and teacher practices can slow innovative progress, especially when accounting for the age of the teacher population, was provided by a participant who shared, "where it's most difficult are the teachers who've been here for a long time. They've done things the same way for a long time." Summarizing how teacher autonomy can slow the progress of teacher innovation, one participant joked, "I always say we should innovate and change at least at the rate of inflation."

Teacher accountability. Respecting the value of teacher autonomy does not presuppose that teachers should not be held to clear expectations around student learning and curricular innovation, yet participants in Case Study Two shared observations that the administration had difficulty moving teachers whose practices no longer aligned with the school's learning aspirations. One participant described these difficulties, adding:

> I know [administration] sometimes doesn't address certain teachers who haven't made changes or that are having difficulty with certain things…but because maybe there's so much autonomy those teachers will say right back to the [supervisor] "this is what I'm doing and this seems to be working."

This participant went on to conclude, "If there's no consequence, why change?" This experience was validated by K-5 administrators who shared that a pattern of poor teacher accountability has led to some teachers to ask for insurances that the 2-5 administration will hold all teachers accountable to a proposed curricular change before they will agree to accept the change. One administrator recalled:

> In one of my conversations [with teachers]...they expressed a desire, from the faculty, who said, "okay, we're willing to put in the time [to learn this new practice], but as administration, are you guys willing to hold people accountable to the things that we say are in the best interest of kids?" It was a really interesting meeting, where they were all on board, but then, there was this hesitancy…like, "okay, if we're going to stick our neck out, is there going to be the administration behind us, supporting us, saying, 'yes, this is good, and you laggards ...[better move forward too].'"

Although it appears a lack of teacher accountability can have an effect on mobilizing individual teachers and systematic grade level change, it's disingenuous to describe this reluctance to change as solely stemming from the teacher. Instead, participants described a lack of clear curricular goals as also harming the division's ability to move ideas forward. One participant highlighted this challenge by sharing:

> When we talk about twenty-first century skills…we probably should either make a decision about whether coding is a value or not. [So what does it mean] if we come to the conclusion that it is…[yet] we're just not having that conversation.

On this point, given the numerous trends that come and go in education, it behooves the administration to be clear about which trends, and to what degree, the administration expects teachers to reform their classroom to reflect a particular innovation. Additionally, administration must be strategic about providing a variety of supports for teachers who need help through curricular transition.

Despite challenges with teacher accountability, it's evident that the administration in grades 2-5 is deeply commitment to supporting teachers improve their teaching practice through a number of strategies including developing and supporting professional learning opportunities and strength-based coaching. Still, the combination of teacher autonomy, underdeveloped teacher accountability mechanisms, and limited focus on goals has made it difficult to move some teachers forward.

Time. Participants in Case Study Two were clear that the commodity of time was a key mechanism in promoting teacher innovation. In particular, time to meet with other teachers to learn from one another, discuss curricular possibilities, and to try new ideas were deemed as most difficult to secure. Given the nature of an elementary school this challenge is very real as one participant described:

> I think all of our teachers work very, very hard. There are times we don't even attempt to go to the bathroom, that's how busy our day is. We're dealing with social issues and with other things throughout the day. It's hard to be innovative, I think, when you don't have time to devote to it.

On this last point, even when teachers do have time to meet, participants shared that the busyness of a typical school day can greatly limit the amount of innovative work a group

of teachers can get done when it's time to meet, adding "it's hard to move someone in a one hour [meeting]."

Time for collaboration was mentioned by 2-5 administrators as being a continual challenge for supporting teacher innovation and moving ideas forward. Adding that one way they hope to improve in this area is through developing PLCs and to focus curricular growth around one or two areas as was done in the K-1 division. Additionally, administrators were hopeful that as the division prepares to move into a new purpose-built facility, discussion about schedules and time would be a high priority with the hope that a new schedule would help alleviate some of the challenges associated with time.

Case study two summary. Many important themes surfaced amongst the participants in Case Study Two. These themes fall into the following three categories: experiences and motivations that impact innovative teachers, coming to embrace innovation in grades 2-5, and organizational considerations that impact grades 2-5 teacher innovation.

Participants in Case Study Two shared various experiences and motivations that have impacted their classrooms, especially highlighting the significance of childhood experiences as a student and the impact of empathy for students. One participant discussed extensively how, as a child, poor experiences in elementary school were a significant contributor to this their commitment to innovation, adding that they have tried to provide their students the opposite of what they experienced. Participants also discussed how empathy for students was an important motivator for innovation. One participant discussed that empathy for students, especially who are struggling, was important, whereas the other participant discussed that empathy often motivated them to

think about what their students might find exciting and interesting, and shaping classes experiences from this perspective.

Participants in Case Study Two shared examples of what leads their innovative practice and how they've come to embrace innovation in grades 2-5. In addition to describing how their teaching practice has evolved, which included a commitment to constantly try new techniques and technology, participants also discussed the importance of embracing student inquiry to lead innovation as being an important driver to lead innovative practices.

Individual interviews with participants from Case Study Two as well as data gathered from the K-5 administrator focus group revealed a number of organizational considerations that impact grades 2-5 teacher innovation, most notably in the areas of professional learning, teacher autonomy, and teacher accountability.

Both participants cited opportunities for professional learning as an important mechanism for advancing their innovative classroom practices. However, both participants and administrators noted frustration with the school's habit of inviting visiting scholar who promote a specific innovative teaching practice with little or no follow up by the administration to advance the practice.

A culture of teacher autonomy was cited by participants in Case Study Two as an important ingredient to support their innovative work. Still, participants noted that unchecked teacher autonomy was also partly responsible for stunting the grades 2-5 division from moving forward. Case Study Two participants added that a mixture of talented teachers and strong personalities has made moving some teachers challenging, especially with respect to some of the most veteran faculty.

Participants and administrators discussed weaknesses and challenges with teacher accountability, and this has led to reluctance by some teachers to adopt new teaching practices unless assurances are made by administration that they will hold all teachers accountable to newly promoted teaching practices. The combination of teacher autonomy, underdeveloped teacher accountability mechanisms, and limited focus on goals has made moving teachers forward difficult.

Case Study Three: Grades 6-8

Demographic profile. The grades 6-8 division at Punahou is located in Case Middle School, a purpose-built facility completed in 2006 to support the unique needs of middle school learners. Case Middle School supports over 1000 students in grades 6-8 who are housed in teams, which in sixth grade is comprised of 6 two-person core teaching teams, and in seventh and eighth grade includes 4 four-person core teaching teams. Additionally, students intersect with numerous elective and language teachers, who also function in an advisory/homeroom capacity, along with core teachers, on seventh and eighth grade teams. In total, nearly 100 faculty comprise the 6-8 division, who are supported by three grade level supervisors who follow a specific grade level through three years in the middle school. The three supervisors work in partnership with one another and with the Junior School Principal to provide vision and leadership for the 6-8 division with the support of nine department chairs and eleven team leaders.

Case Study Three is comprised of three individual interviews with innovative teachers in grades 6-8 from Case Middle School. However, as discussed in Chapter 3 after the selection of the three participants, one participant's teaching team member agreed to also participate in the interview, as these two teachers do some of their work

and planning together, and their collaboration in the interview provided a deeper understanding of the team dynamic unique to grades 6-8. Additionally, a faculty focus group interview was conducted with three middle school department chairs.

The following section discusses a number of important themes that surfaced in Case Study Three from teacher participants and the middle school department chairs. These important themes have been categorized into the areas of experiences and motivations that impact innovative teachers, coming to embrace innovative teaching in grades 6-8, and organizational mechanisms that impact innovative teaching in grades 6-8. Finally, a summary is provided at the end of this section.

Experiences and motivations that impact innovative teachers. Participants in Case Study Three were asked to describe how life experiences have impacted their teaching practices. Additionally, a number of motivations and practices were identified as key to driving the work and innovation of these teachers.

Supporting non-traditional students and learning styles. Multiple participants in Case Study Three expressed experiences with non-traditional students and learning styles before their time as a teacher at Punahou as being key to their development as an innovative teacher. For two participants, experiences working with disadvantaged students in Hawai‘i public schools had a major impact on their innovative outlook. One of these participants expressed how this experience had shaped their commitment to building relationships with students when sharing:

> [I found] that saying "they don't care what you know, until they know that you care" to be so true for the students [from my previous school] and I think my experiences there have shaped the way that I work with our

> students and how I work together and collaborate with our entire team…Before we can even open up our classroom and teach them content, we have to develop that relationship with them…I think that all stems back to my experience working with [disadvantaged] kids.

Expressing a similar experience, a different participant who worked in a similar public school setting in Hawai‘i expressed "from my first teaching experiences, I realized I've got to do more interactive and engaging things." This participant shared that this feeling was in part due to the challenges these students were having with more traditional teaching practices.

A different participant, who is an alum, expressed how their experiences as a self-described "non-traditional" Punahou student has greatly shaped the way they interact with their students. This participant explained this experience, sharing "I was the first [in my family] to go to college…and the majority of my family either went to Hawai‘i public schools or parochial-like Catholic schools…so my values and beliefs as a teacher definitely are formed by that [experience]." This participant went on to add, "in my house, education took the back burner to other things, maybe religion or family or something. So for me that value of education, I feel like it's a little bit more loose and crafted."

Perhaps somewhat related to these experiences, a different participant expressed the influence raising children had on their teaching practices sharing that after "having three children, I learned a lot about how children think by living through their lives with them." This participant went on to describe how this influenced their classroom, adding "[before] when students go home [as a teacher] you tell them, "Oh, come back tomorrow

with your homework," but [as a parent] when you watch them come home and struggle or try to understand an idea, you realize he or she didn't get that thing that happened in class." Of course, the opposite can be true about how a student spends time in class, which the participant pointed out by sharing an experience when their child came home and it was clear that their child "got it so easily that they were wasting their time in that class."

Influence of other teachers and mentors. Multiple participants in Case Study Three described specific experiences with fellow teachers or professional mentors as having a major influence on the development of their innovative practices. One participant described the support they received from colleagues throughout their career as crucial to their development when adding, "my colleagues with whom I've worked when I first started teaching and continued on through the years…seeing what they're doing and then supporting me in ideas… [and being] supportive of what projects I'm undertaking." Another participant shared that teachers at Punahou provided reassurance and support by modeling confidence in their classroom, strengthening this teacher in the first year of their career at Punahou as they found their identity as a teacher.

Professional mentors were critical to the development of one participant who shared how a nationally known education scholar helped encourage and promote the innovative work this participant was doing in curriculum development and pedagogy. Solidifying some major philosophical shifts, this teacher shared how this experience helped them to focus "more on engaging kids to really reinforce the thinking part, and to not really focus on the factual and detail information as much as looking at the bigger picture and [how to apply] those facts and information." This shift led to sustained efforts

to develop project-based learning experiences to promote engagement, which this participant discussed when sharing, "[I like to get them] hooked…with some kind of engaging activity and using that to culminate into some really deep project-based thing, where they have to apply the knowledge and skills, rather than just relying on tests and [assignments] to look at the facts." Summing up the impact of this mentoring experience the participant added "half way through my teaching, I think that [mentorship]…shifted my focus and shaped my beliefs…It refined it, because it validated what I was doing. I think that's what has steered me to where I am today."

Coming to embrace innovative teaching in grades 6-8. Between the three cases examined in Case Study Three it was clear that participants found inspiration for their innovative practice from a handful of similar places. Additionally, the inclusion of a teaching team in Case Study Three has provided rich data that reveals unique insights on the value of the teaming model that is employed in the middle school.

Evolution of teaching practice. Each participant described how their teaching practices have evolved over the span of their career including the use of technology, a greater awareness of student needs and concerns, and intentional collaboration with peers in the greater innovator community. One participant discussed the impact of the advent of computers to the classroom when sharing, "computers revolutionized the teaching of writing compared to when I was a student and my first 20 years as a teacher because of [the process of] drafting papers and revision." Another significant evolution of practice for one participant included increased awareness and support of students with learning differences. This participant described this shift, sharing "there are kids who have

learning problems [and] emotional problems and I feel like I'm just more aware of that so that I can help adjust things in my teaching practice for them."

Several participants shared how the growth of their network of teacher colleagues had influenced their practices and that this has become a regular inspiration for innovative ideas for their classroom. Multiple participants described the impact social media, and Twitter in particular, plays in the development of innovative ideas, describing Twitter as a frequent virtual meeting spots for teachers across the world to share innovative practices, as well as an avenue for teachers to informally share ideas within the Punahou community. Additionally, two participants spoke about the impact working as a resource teacher in the Hawai‘i Department of Education had on their careers since the nature of their position exposed them to numerous teaching styles and practices that later impacted their reentry into the classroom.

Embracing student inquiry to lead innovation. Each participant in Case Study Three was clear that student inquiry and interests played a significant role in driving innovative practices in their classroom. Important components of this shared theme include a commitment to student engagement as well as intentional practices to solicit student suggestions and feedback to drive classroom work. Participants from the teaching team described the importance of engaging students by emphasizing experiential learning that is relevant to the student's interests, adding:

> It all goes back, for us, to our students…and what can we do to help our students learn? [We try] to make things enjoyable, memorable and focus on the experiences of learning, more than just [our subject areas]. I think

[what] leads our innovation, is really looking at what the kids are getting [out of it].

Participants from the teaching team also described how they intentionally solicit feedback from students as a method to grow and adjust their innovative practice. An example of this practice was provided by this team when they shared "we just asked them to give us feedback on what they felt was important, how can we motivate them or keep them engaged a little bit more, [so] that they understand the purpose [of what they're learning]."

When one participant was asked "what leads your innovation in the classroom?" She responded simply by saying "the students." Another participant described an example of how a student's interest or inquiry may turn into a classroom activity when sharing "sometimes a kid will just have an idea and say something to me that just strikes me. It's like, 'yeah, we should do that.' Then I'll be like, 'guys, let's just do that.' Then everyone gets excited about it." Summarizing the origins of this kind of innovation this teacher concluded, "it comes from the kids." Echoing other participants' experience, one participant added, "I think just learning from the kids helps to lead our innovation…[and asking] what are some of their needs or issues?"

Teacher disposition towards innovation. Among all participants in Case Study Three was a consistent commitment and disposition to continually adapt and evolve current practices in their classrooms. This attitude towards innovation was cited numerous times as the foundation for sparking and inspiring classroom innovation and includes a notable willingness to try new things, a responsibility to satisfy one's own curiosity, and a trust for learners that leads to a strong partnership between teacher and

students. Participants from the teaching team described the impact their willingness to try new ideas has had on their innovative teaching when sharing, "we're willing to just jump in and try something. Like we have an idea and I'd say, 'Okay, here's what it's going to look like, here's what we're hoping to get out of it. Let's try it.'" This team went on to described how flexibility and a vulnerability were important in their practice, adding "I think for us, in terms of moving forward and being innovators, I think that's key. To be flexible and be vulnerable…we jump in if [administration or others] have a good idea." By vulnerable, these participants mean that they are willing to try new ideas, give up some control, and are all right if the results do not turn out as expected.

Other participants pointed out the importance of satisfying their curiosity as an important component that leads to innovative practices. For example, one participant discussed their curiosity sharing, "Why do something? Part of it is I'm just curious…I want to have intellectual stimulation…why do you read books? Why do you climb mountains? It's because they're there. I feel like that's a human thing, at least for me." Another participant shared the need to satisfy their curiosities in the classroom by sharing, "If I'm not entertained, or if I'm bored, then I'm not a good teacher."

Another important tendency cited by participants in Case Study Three that leads to innovation in the classroom is establishing a trust for learners that leads to a strong partnership between teachers and students. This trust, in part, comes from a teacher's willingness to lessen their control on the class and allow for students to have a greater say in day-to-day class instruction and the overall direction of the class. One participant described the impact of this tendency amongst teachers on a team, sharing:

> That's one of the [reasons] why our team works well together. [I think] for a lot of teachers it's difficult to give up control of things and we're okay…we feel that giving up the control, we're comfortable with it because we've done it so much. Giving up the control is the most worthwhile thing because that's when the kids learn the most.

This style of teaching is rooted in inquiry-based learning, where teachers develop classroom experiences which places heavy emphasis on allowing a student's interests to lead learning within a lesson or project. Although not new, this style of teaching has been emphasized by the administration at Punahou as an important component to a Punahou education.

Emphasis on skills over content. Each participant in Case Study Three teaches one of four core content areas including math, science, social studies, or English. Additionally, each of the participants has spent the majority of their teaching career in this current core subject area. However, an important theme that surfaced amongst multiple participants was a tendency for curricular decisions to be driven with the goal of promoting twenty-first century skill development rather than teaching more content. For example, one participant explained how this phenomenon impacted their classroom, sharing:

> [I think] content is not the most important thing in the world [for a middle school student]. You don't need to cover every single fact or skill because these learning experiences will go deeper and they'll be more memorable, they'll get more out of it, they'll enjoy learning and it'll be something that they can carry forth as they go down the line, especially as technology

> increases. [They] might not need to know the atomic number…[because they] could just look it up somewhere, but if [they] understand the bigger picture, it'll be more helpful because [their] thinking, [their] problem solving abilities, collaborative skills, communication skills, will all be a little bit better.

This participant shared how they use classroom activities to promote twenty-first century skills by asking "thinking questions" and allowing student to explore conclusions. This participant discussed their commitment to relevant skill development, sharing:

> [I aim to make] it bigger, [make] it relevant, [make] it real world. Then also, not just focusing on factual details, but [instead] I always ask my kids thinking questions in their conclusion. They also have to explain why they think something happened. It might not be right, but I still want to see they're thinking about why they thought things turned out that way.

Contrastingly, one participant was quick to share that content was key to inspiring a number of engaging classroom activities. When asked, "what inspires the development of new ideas in your classroom?" This participant responded:

> One is content…In history when I found out about the Chicago World's Fair, I got excited about it because it seemed to be this nexus of historical immigration and innovation in 1893 and that event just seemed to call out for some way to learn about [it].

This participant added that transferring knowledge on important events in history is also a catalyst for classroom activities, or the contents of a particularly interesting book when adding, "[If] there's a book that just seems to be so rich…[or if] I really want the kids to

get this…[I think] how am I going to get it into their brain?" Somewhat related to this appreciation for content, this participant also discussed what they described as "the value of practice" to develop specific skills in the classroom, stating, "I think there are certain skills that need to be developed and required, and kids need to meet those in order to be able to have them in their pocket."

Increasing global connections. Participants from the teaching team had shared a unique commitment to increase and broaden their student's global connections and mentioned this commitment as an important driver that leads their innovative work. Expanding on this topic one participant described the origins of this work when sharing, "we want to teach the kids different perspectives. [That's] what's motivating us to be so active and aggressive with global connections and the fact that we want to open the kid's eyes to what's going on around the world." Members of the teaching team case study expanded on this phenomenon describing a feeling over the previous years that their students were becoming too sheltered at Punahou and that it was their role to expose them to other realities and perspectives around the world. Or as one teacher put it, "our kids live in a little bubble. They don't really see the bigger world, [so we thought] maybe we should start exposing them to different [cultures]…[so] we're making connections with schools [around the world].

Gleaning ideas from others. Participants cited collaboration amongst the K-12 teacher community at Punahou as an important avenue for gleaning ideas for their classrooms. For example, one participant described the importance of learning from others at Punahou as being a much more favorable approach then more formal ways of learning through a book or conference, which they described when sharing:

> I think I learn best socially, so I'm not the type of person that's going to read a professional book from cover to cover and be super motivated by a lot of things, but if we sit down and talk about things, I think that's more where I get new ideas. What inspires me is actually talking with people, watching people, and listening to people.

Another participant shared a similar perspective, noting that the size and scope of experience within the Punahou community is so large that it allows for incredible opportunities to learn from other's perspective across campus, adding "what is special about Punahou is just the breadth of experiences, and the faculty that have had a wide variety of experiences, and they willingly share…this is truly like a huge community that could have its own zip code." Another participant described how the proximity to other teachers on a middle school team has been an important strategy for keeping track of what others are doing in their classroom, and this has led to the spread and adoption of new ideas between this participant and others. Finally, three of the four participants in Case Study Three cited that making connections with other teachers around the globe via Twitter as an important mechanism for developing classrooms ideas and finding inspiration for innovative practices.

Organizational mechanisms that impact grades 6-8 teacher innovation. Participants in Case Study Three were able to discuss numerous mechanisms at Punahou the impact their innovation in the classroom. The impact of these mechanisms vary by participants as well as the degree to which they are positive or negative for fostering innovation but focus on the middle school team structure, administrative support, divisional structures, and access to resources.

Middle school team structure. Unique to Case Middle School in comparison to other divisions at Punahou is the use of interdisciplinary teaching teams. The sixth grade is comprised of 6 two-teacher teams, and the seventh and eighth grade are each made up from 4 four-teacher teams. Additionally, the seventh and eighth grade teams include three elective/specialist teachers that participate in a homeroom/advisory program. The individual case within Case Study Three that was compromised of two innovative teachers from one of these teaching teams provided insight into some of the benefits and challenges associated with middle school teaming. Throughout my interview with this teaching team it was clear that the close working relationship between these two teachers was key to sparking a number of innovations, which was discussed earlier in this chapter. However, these participants also shared that inconstancies in team makeup from year to year can cause major difficulties for maximizing the effectiveness of the teams, which they discussed when sharing:

> *Teacher 1*: The stability part of it, because it's so messy, it's hard to have new people just jump in. *Teacher 2:* It's because they don't feel comfortable. *Teacher 1:* it's hard to explain all of the little things that would come up [when doing a large project]. Having team consistency is super important, because once they go through [a year], at least they can start adding their input in, they're more familiar with what to expect and that…*Teacher 2:* Can be better. *Teacher 1:* Then we can start moving forward. If you're always trying to explain things before, it's difficult to move forward when you're still stuck in the past or in this part of it.

These participants went on to share the importance of all teachers on a team sharing a similar innovative disposition and a willingness to try new things, adding:

> *Teacher 1*: It all goes back to the makeup of the team. You have to have people willing to jump in. If you have three people and one person is hesitant to jump in, it's going to make…*Teacher 2*: Life is not going to be easy on our team. It's not. *Teacher 1*: That's, like I said, that's the hard part about [team] teaching is finding people willing to give up control, give-up their own class time. *Teacher 2:* Being comfortable with the fact that we don't know where this inquiry project is going to go.

Discussing the rate at which teachers can be moved around one participant shared, "I've been here for seven years and I don't think I've had the same teachers on my team for three years in a row." In fact, this participant was able to list five different teachers that have moved in and out of the team over the past few years. Additionally, the frequent movement of elective/specialist teachers that comprise the non-core members of the team was also noted as being disruptive. Summarizing the impact of teaming on innovation one participant shared, "the dynamics at the team level are important. I don't think anybody on the outside can see the importance of the dynamics of a team and the effects it has on the kids, if you're just on the outside."

An additional challenge discussed by the teaching team within Case Study Three was around confusion about the extent to which teams could be autonomous to other teams in the grade level. This point was made in reference to past events where a team was unable to proceed with a new activity because, according to the participants, the middle school administration was concerned that the different activity occurring on their

team would make other teachers, and perhaps even students and parents, on other teams feel that they were missing out on something. Whether this feeling is accurate these participants shared that this confusion results in broken trust with administration and a perspective that "if it's worthwhile, we're going to do it. We're not going to ask, because it's going to hold us back."

Administrative support. Related to this last point, participants and department chairs, who participated in the faculty focus group, discussed how support from middle school supervisors was important in advancing innovative teaching practices. Both groups agreed that when middle school supervisors were interested and supportive of an idea, it became much easier to advance a curricular initiative. Contrastingly, both case study and focus group participants discussed ways in which supervisor disapproval was not well-received by teachers and perceived as destructive. One middle school department chair discussed this phenomenon, sharing:

> We had instances where teams of teachers, or departments, or groups of people have wanted to try to do something and they got down a certain road and then it came to a point where what we thought was a really good idea got squashed by somebody in administration who said, "No, can't do that, can't do that"… From that point forward it's become stuck and it's hard to move past that. So it kind of comes back to the feeling of not being supported.

Members of the department chair focus group shared more about their perceptions of mistrust from supervisors and the difficult push and pull of seeking permission in the following exchange:

> *Department Chair 1:* Support from the [supervisors] to say "yes, go." I asked, "Can I do [this curricular] thing"? [The answer was] "Yes." [They] could've told me "no." *Department Chair 2:* What's interesting about that is we still have to ask for permission. Whereas you came across something, and you thought this would be great for your kids, but you couldn't start . . . *Department Chair 1***:** Until I got permission. *Department Chair 2***:** It's interesting. I mean I understand why. I understand that there are reasons why we need to go through that process, [but] why couldn't you just begin and then kind of on the backend say, "I'm involved in this project." If there was that relationship between the administration and the faculty that existed where there was a give and take, or that kind of thing. *Department Chair 1***:** Trust in what you are doing. *Department Chair 2***:** Trust that as a professional that…we're not going to do anything to put kids in harms way. Or that even if we thought there was a question about it that we would come to [the supervisors] first, as opposed to something like this example, which I think in a way, you could have just done.

One participant in the department chair focus group added that a practice of seeking permission from administrators and other teachers was especially challenging for advancing cross-divisional innovations since teachers in grades K-5 have even more people to connect with before moving an idea forward, adding:

> [K-5 teachers] have to run it by, usually not only their supervisor, but the teachers as well. So a lot of times they have to get the support of the third grade teachers if they want to innovate and do something, or the

> scheduling, or whatever they want. I think that it hampers our ability to really look at our curriculum and innovate across [divisions] in a way that is seamless.

Despite these perceptions by faculty about administration, it's reasonable to assume that supervisors have a role and unique vantage point to help support and align curricular innovation, which may include supporting particular ideas that align most with Punahou's *Key Aims*. Still, it appears that these perceptions by faculty indicate a deeper strain related to trust, tone, and culture between teachers and administrators in the middle school.

Divisional structures. Participants in the middle school department chair focus group reported that differences in instructional structures between divisions have caused difficulties when promoting collaboration and innovation across divisions. In particular, a lack of K-5 department chairs was mentioned as stunting collaboration, which one participant described when saying, "the lack of somebody to be a part of larger conversations about [curriculum] sometimes make it very challenging to move that part of the campus along." This structure is in part due to most K-5 teachers teach in a self-contained classroom and teach multiple subjects that can be heavily integrated.

Access to resources. Among one of the clearest themes that surfaced among all participants was the benefits realized from abundant access to resources. One participant discussed this mechanism, sharing "whether it's in terms of money, education, time, or what have you, I feel like it's pretty good. If you ask for it, then you get it. Books, whatever you need. Things are forthcoming. That's a good thing." Another teacher described the benefits of this mechanism adding, "this place is like a veritable candy store for resources." Another participant stated, "there's not much holding us back" when

discussing obstacles that might impede their innovative work in the classroom. Finally, one participant might have said it best when encapsulating the impact of access to resources at Punahou when stating:

> Anything that happens that's not good in my classroom, it's my fault. I have all the technology I could possibly use. I have a great classroom. I have wonderful children. I have supportive parents. I have administrators who help me out in every way. Every facility you could imagine. If something goes wrong, it's my fault. What holds me back in this school? Not much other than my own personal time or lack of skill in something. The support from colleagues, it's just unbelievable. So the things that hold me back, I feel like there's nothing insurmountable. Parent's support, that's not a problem. My parents love helping out.

On this last point, all participants shared tremendous thankfulness and a general regard towards Punahou's willingness to fund the resources needed for teachers to dream and imagine new ideas for their classroom.

Case study three summary. Many important themes around teacher innovation at Punahou surfaced in Case Study Three through individual interviews with teacher participants and the 6-8 department chair focus group. These themes fall in the categories of experiences and motivations that impact teacher innovation, coming to embrace innovation in grades 6-8, and organizational considerations that impact grades 6-8 teacher innovation.

A number of participants expressed experiences with non-traditional students and learning styles as well as influences of other teachers and mentors as important

experiences and motivations that impacted and inspired their innovative practice. Amongst the participants, two teachers shared experiences working with disadvantaged communities prior to working at Punahou as being key to their development. While another participant, who was also an alumna, shared experiences attending Punahou as a self-described non-traditional student as having an important influence on her motivation for teacher innovation.

Additionally, multiple participants described specific experiences with fellow teachers or professional mentors as having a major influence on the development of their innovative practices. Moreover, for some participants the influence of mentors was cited as being key to help solidify philosophical leanings towards innovative practices.

Among the important themes discussed by all participants in Case Study Three in regards to coming to embrace innovation and what leads their innovative practices, participants discussed embracing student inquiry to lead innovation and gleaning ideas from others. Important components of this shared theme included a commitment to student engagement as well as intentional practices to solicit student suggestions and feedback to drive classroom work. Additionally, all participants discussed ways in which they benefited from vibrant professional networks in and outside of Punahou, and three out of four participants discussed Twitter as an important tool in this process.

Numerous organizational mechanisms were discussed as having an impact on teacher innovation in the middle school at Punahou, including the importance of the team structure, administrative support, and access to resources. Perhaps, most unique to Case Study Three in comparison to the other cases, is the structure of the middle school around collaborative interdisciplinary teams. Participants discussed numerous ways in which this

structure was helpful for collaboration and innovation, but also shared that inconsistent team makeup or problems on a team could damage a team's opportunity for innovation.

Support from the administration in the middle school was mentioned as critical to advancing innovation by both teacher participants and the 6-8 department chair focus group. Contrastingly, a discussion by participants from both groups indicated the possibility of a deeper strain related to trust, tone, and culture between teachers and administrators in the middle school. Finally, access to resources was discussed as an important mechanism to support innovation.

Case Study Four: Grades 9-12

Demographic profile. The grades 9-12 division at Punahou is located in the oldest part of campus and is more commonly referred to as the Academy. Composed of upwards of 1900 students and over 170 faculty members, the Academy is the largest division at Punahou School. Academy leadership is comprised of numerous individuals including a principal, two assistant principals, ten department chairs, eight deans of students, and many others who provide instructional leadership, faculty development, and student support.

Case Study Four is comprised of two participants that were identified through the selection process outlined in the Chapter 3 as well as an Academy Department Chair focus group that included five participants. The following section discusses a number of important themes that surfaced in Case Study Four from teacher participants and Academy Department Chairs. These important themes have been categorized into the following areas: experiences and motivations that impact innovative teachers, coming to embrace innovative teaching in grades 9-12, and organizational mechanisms that impact

innovative teaching in grades 9-12. Additionally, a summary of Case Study Four is provided at the end of this section.

Experiences and motivations that impact innovative teachers. Participants in the grades 9-12 case study were asked to describe how their various life experiences have impacted their teaching practices. Additionally, a number of motivations and practices were identified as key to driving the work and innovation of these teachers.

Building community. A key motivator to the work of both participants in Case Study Four was a commitment to building a strong community with and amongst students in their classes. One participant described how Punahou's size has made it necessary for them to overtly build community, since otherwise students often do not know many of the students in their class, which may impact the classroom experience. This teacher described how they realized this need when sharing:

> I've had kids where it's been October and they're sitting in my class and we're having a discussion and they'll say like, "what's his name said." That's when I realized this is their only class together, three times a cycle that they see each other. They're not in any of the same classes, they don't hang out in the same groups, they don't know each other. You don't even know the person's name, let alone what they're good at, what they're passionate about. [I've had to ask myself] how do you see the classroom as a group of people working together rather than just a collection of individuals?

Additionally, this participant noted that their work teaching an online class to students who are from all around the world has further reiterated the importance of building

community in the classroom at Punahou. This participant went on to share that developing classroom experiences that intentionally build community amongst students online made him think twice about connections amongst students at Punahou, adding "I found that not only did I know the kids better [in my online classes]…I found the kids knew each other better than the kids in my face-to-face classes."

Another participant described a similar commitment to community building that came from time working in a public school with a number of disadvantaged students. At first, reluctant to accept a position at Punahou, this participant described a conversation with a colleague who reminded her that "kids need [good teachers] everywhere." This participant added:

> [After arriving at Punahou] I realized that what they were saying was true, that kids need your help wherever they are, and I think that has always been the core of my teaching. If the kids love you, then they'll do anything for you and they'll want to learn from you.

These experiences exemplify the commitment by participants in Case Study Four to make community-building amongst students a key component in the development of their innovative classroom experiences.

Transferring values. Both participants discussed the importance of transferring values to their students as a key motivator to their teaching practices. The specific values modeled or conveyed in the classroom sometimes varied by participant, but included a commitment to exploring ethics, modeling informed citizenry, modeling resiliency, and both participants discussed a commitment to developing the character of their students. One participant described this practice by incorporating "life values" into classroom

activities, for example "we might talk about [a realistic scenario], and what to do if you got in this situation or that situation?" However, less focused on right or wrong answers, this participant shared that the point of these discussions is to challenge the students to develop the opinions behind their own values.

Both participants described the importance of transferring values to their students through modeling particular behavior. For one participant this meant modeling professionalism and being an informed citizen, adding, "I'm constantly modeling [what it means to be an informed citizen]. I'm on time, I'm professional, I'm respectful, and I expect those same things to come back to me from the kids." The other participant described challenges they've faced as a teacher learning the content area they teach through non-traditional means, which is discussed later, has challenged them to promote the lessons they have learned in a unique way, adding, "I'm trying to model for the kids how to be resilient and resourceful learners on their own as they learn this difficult stuff."

Each participant shared explicitly that they have an important commitment to growing the character of their students. One participant discussed the importance of this phenomenon emphasizing "soft skills" instead of allowing grades to determine a student's worth or well-being in their classroom when stating "I tell them that it is way more important to me, the atmosphere of the classroom and how they are as citizens, than what grade they get." Additionally, this participant discussed the weight they put on themselves to shape a student's character, sharing:

> I realized that every minute you're in the classroom with kids is precious, and you have such a huge responsibility and power to influence how they think, and how they feel about themselves, and how they feel about each

> other, and I take that so seriously, that I am constantly trying to think of ways that they are engaged in their learning [through] learning those soft skills.

The other participant in Case Study Four emphasized a similar commitment to shaping the character of their students when sharing "I try to model the kind of person that I hope they end up being." Adding, "that it doesn't really matter from a curricular standpoint what I do," if a student does not grow in the basic areas of character development while in my classroom.

Empathy for students. Although much of what has already been discussed could be described as related to the impact a teacher's empathy for students has had on their innovative practices, both participants in Case Study Four described how difficult experiences as a student increased their empathy for students and its impact in the classroom. One participant described this experience when sharing that some classroom practices were driven by choosing to teach differently than the way they were taught, adding "I have been taught in ways that were not enduring, and so therefore, I'm going to try not to make that same mistake."

Additionally, the other participant in Case Study Four shared an impactful experience that helps drive their empathy for students in the STEM classes they currently teach, sharing:

> I still struggle with programming, because I didn't study computer science in college, but I think part of what makes me a good teacher is I'm closer to where the kids are [and] I understand what it's like to look at code and not understand what it says.

As mentioned earlier, this participant added that their struggle to understand the content they're teaching has allowed them to model resiliency and resourcefulness to their students while also empathizing with their student's learning experiences.

Experiential learning backgrounds. Notable amongst both participants were experiences and the inspiration they gleaned from fields where experiential learning is emphasized. For one participant the practice of hands on learning and problem-based learning from medical schools has impacted the way they develop curriculum for their classroom. Whereas experiences working in an experiential science museum had an important impact on the other participant, who discussed how the nature of a museum, where visitors can move on if uninterested in your presentation, had significantly impacted their classroom practices when sharing:

> When you're teaching in the Museum of Science, where people are paying to come in and walk around, I would go up on stage and I'd talk about physics or something, and if I were having an off day or I wasn't interesting enough, people would just stand up in the middle of presentation and they'd move on, because I'm just one attraction of many. I learned in teaching to not be too wordy, to emphasize do rather than tell. To try to create in my own setup more of a learning environment, like the museum as a whole, than just doing a lecture, because people won't listen to lectures if they're surrounded by many more appealing manipulatives and things like that… In class, now when I lecture, and I have to sometimes, I just try to keep it very concise and just try to be as engaging as possible.

This experience, plus experiences working as a hands-on science teacher in an elementary school, has made this participant keenly aware of the attention span of students, and to also include manipulatives, and other hands-on objects, when working with students right away.

Coming to embrace innovation in grades 9-12. Participants in Case Study Four discussed numerous examples of mechanisms that inspire and lead their innovative practices in the classroom. Although these mechanisms varied by participants, most noteworthy was a commitment to student engagement, satisfying their own curiosity as a teacher, keeping learning relevant for students, and gleaning from others in and outside of Punahou.

Evolution of practice. Like all participants, teachers in Case Study Four shared that their teaching practices have evolved significantly over their careers. Most notably, these changes included less reliance on content as the driver for curriculum and a commitment to building community with and amongst students in their classrooms. One participant discussed the importance of content knowledge earlier in their career, sharing "I think initially, [I thought], “can I just get the content down?” because the kids will find out right away whether you know what you’re talking about, and then you move from that to creating [more innovative] things." The other participant described a similar focus on content earlier in their career but shared that the reason for moving away from content knowledge later in their career was related to a belief that skills are more valuable to teach than content, since as the participant shared "[that with] the ease of access to information now, and the extent to which I've learned stuff online, it's much greater now

than it was in the beginning. I think my teaching has really turned much more to emphasizing skills."

As shared earlier in this chapter, participants in Case Study Four discussed experiences that motivated them to build community with and amongst their students. One participant discussed the evolution of this focus on community when sharing, "most recently what I've really been interested in is how to create a supportive learning community amongst kids, because I think that ultimately is the most important thing." This participant described a move away from teacher-student relationships that appear more transactional, sharing:

> I see kids wanting to make that connection with me as the teacher, they want to know, what is it you want? How can I give you what you want so you can get me to the grade that I want? It tends to be very transactional.

This participant went on to add, "I've kind of recalibrated my thinking to be that my classroom needs to look more like a web, rather than a wheel." When asked to explain the difference between a web and a wheel the participant described that a traditional classroom can look like a wheel with the teacher at the center and the students rotating around the teacher. On the other hand, when designing a classroom as a web, students and the teacher become equally reliant on each other to learn, which builds community and limits a transactional experience. As an example of this structure, this participant shared a story about a time they were away from school and a substitute had not arrived on time to supervise the class. About 45 minutes later the sub arrived to a classroom of students all dutifully working on their projects without any supervision. When the participant returned and asked the students about the sub they explained, "[when] they

hadn't seen a teacher, they just sat down and got right to work." Sharing later "we didn't think we needed a sub. We knew what we needed to do, we figured we just needed to do it." When reflecting on this experience the participant added, "to me, that's a sign of success...[all student learning] shouldn't be on my shoulders, kids need to take responsibility for their own learning, and be resourceful about finding and going to lots of different sources."

Commitment to student engagement. Both participants in Case Study Four described a commitment to increasing student engagement as one of the main inspirations that had led their innovative practice in the classroom. In particular, participants discussed frequently monitoring and adjusting classroom activities to increase engagement, emphasizing relevant classroom exercises and other techniques to grab student attention. One participant described their awareness of student engagement as an "antenna," adding, "I can tell if the kids are engaged or not, and so I will jump or shift in the middle of a class if I feel like this is just not working." As mentioned earlier, the other participant reiterated the influence of working in an interactive museum as responsible for inspiring innovative practices emphasizing "do rather than tell."

Participants in Case Study Four both cited utilizing different techniques and objects in replacement of more traditional direct teaching methods to increase student engagement. One participant described placing a lot of emphasis on relevant learning scenarios, similar to experiences a student receives in medical school to learn the scientific method in the classroom. Describing this practice, this participant added, "one of my biggest innovative [practices] is [utilizing] problem-based learning, and that has

guided me so much in terms of creating scenarios and having [student] buy-in." As an example of this experience this participant added:

> As a team, they learn a lot about anatomy and physiology…They make observations, and they make a hypothesis, and then they go out and research, and then make a diagnosis, and then finally, the treatment. I always have them write a letter to the patient or they have to videotape of what they're going to say to the patient, so that brings in all the soft skills again of their professionalism, their empathy, their clarity, their prescription for success.

As mentioned earlier in this case study, it is in these scenarios where this participant also emphasizes various "life values" to support student learning and to transfer values.

The other participant similarly shared examples of utilizing classroom methods to grab student attention, as a valuable mechanism to lead innovation when sharing:

> More than anything else, I try to provide artifacts and things for kids to play with and do and work with, because I try to look at teaching as a process of constructing knowledge through play essentially, and through building.

It's worth summarizing that both participants' emphasis on student engagement manifested itself in developing classroom environments that allow students to learn by doing.

Satisfying teacher curiosity. Both participants in Case Study Four noted the need to satisfy their curiosity as an important mechanism that leads their innovation in the classroom. One participant described this phenomenon, stating "I just get bored with

doing things one way, I just can't do it. I just feel like, 'okay, let's try this.'" Similarly, the other participant shared, "I've always been willing to try things. I think for me, it's a sense of once I've taught the same thing the same way for more than a couple of years, I kind of get bored with it and I want to change it." Both participants were clear that teaching the same thing over multiple times in the same way was completely unpalatable, with one participant going as far as saying, "I can't think of many things that I would want to do less than teach the same thing the same way for years and years and years," while the other participant bluntly shared, "[if] this [is] going to be it, day after day, then just shoot me."

Relevancy for students. As already indicated in a number of ways, participants in Case Study Four have emphasized a commitment to fostering student learning through ensuring that classroom practices are relevant and engaging for students. This focus on relevancy also extends to a commitment by teachers to differentiate instruction for each student and to constantly adjust and personalize their instruction to the needs and interests of each group of students that they encounter. One participant shared how they became more comfortable with adjusting and differentiating homework for each student, explaining:

> I can remember I always assigned the same number of problems in [my math class]. "You've got to do these problems. If you don't do these problems, you're never going to get it, and I know it's repetitive." One kid, I remember, came and talked to me. He said, "You know…not everybody needs to do every single problem, I know it after doing one, and someone else may need to do that repetitively.' It was just like, "Oh,

> you’re right. Not every kid has to do everything the same.” If you’re aware enough of differences then you adjust, and you don’t have this solid way that every kid has to do everything, you realize that it can be tempered.

It's worth noting that in addition to this being an example of this participant's commitment to differentiating instruction and assessment for each student, this example demonstrates this participant's flexibility and openness to student feedback to influence practice.

This participant's commitment to adjusting practice to sustain relevancy also extends to a commitment to adjust the focus of learning and classroom activities to match each group of students' interests year after year. Describing how this affects their work, this participant added:

> [I always strive to] connect with [my] audience and to know that every year, every class is different, and so if you’re using the same tool, it may not fit, and so tweaking your tools… for your audience is probably the first way that you develop new ideas.

Therefore, students in this participant's class benefit from a teacher who both differentiates instruction based on the needs of individual students, as well as adjusts and tailors the focus of the class to leverage the interest of the group as a whole.

Gleaning from others. Both participants described a strong commitment to learning from others to drive innovative ideas in their classroom. One participant described how they relied on other teacher's practices at Punahou when sharing, "it’s [my] colleagues who come up with ideas and are willing to share." The other participant

described Punahou's summer Lab School, a yearly technology conference that allows teachers to learn from and with others about technology for the classroom and tinker with various pieces of technology, as being an important avenue for learning that can drive practice. Additionally, one participant described a connection with other innovators outside Punahou, via Twitter, as playing an important role in driving innovation in the classroom.

Organizational mechanisms that impact grades 9-12 teacher innovation. Participants in Case Study Four cited a number of organizational mechanisms, some that are unique to this division, as having an impact on teacher innovation. Most noteworthy was the impact of curricular autonomy and alignment, assessment and reporting, professional development resources, and push towards openness and learning.

Curricular autonomy and alignment. A fascinating phenomenon at Punahou in grades 9-12 is its culture of teacher autonomy, which can result in unique and innovative ways of teaching the same subject amongst different teachers, while also relying on some core curricular classes to be taught in lockstep. The result is an interesting paradigm about what can and cannot be changed in certain classes. One participant described the challenges of moving teachers in a new direction due to autonomy when sharing, "I think that systemic change is very difficult, because of the high degree of teacher autonomy, and there's a real tradition of teacher autonomy in the Academy." Still this participant goes on to discuss the prevalence of piloting innovative ideas in the Academy adding, "I do see innovation happening in pockets. The Academy seems to be very successful in terms of pilots…pilot programs work well."

Yet, despite these innovative pockets, the other participant shared frustration over the lockstep curricular alignment in some core and Advanced Placement classes, sharing "one of the most frustrating things to me, innovation-wise, is when you have a group of teachers that are teaching a large number of kids and you're doing it lockstep…it is stifling." When asked to clarify, the participant shared that many elective classes allow much more curricular autonomy for the teacher, but in the main core and Advanced Placement classes, teachers are expected to teach a set curriculum, some with common assessments, to ensure that all students in every class are taught and assessed in similar ways. This participant added that when they had made attempts to deviate from the set curriculum they experienced pushback from colleagues, the department head, and administration. This participant went on to add that expecting this alignment between classes is "[one of] the biggest impedances to innovation."

Of course, it is possible for a group of teachers that teach a common curriculum to develop shared innovative practices within this class, yet when speaking with members of the Academy Department Chair focus group, one participant commented about the challenges of moving curriculum forward in their department, adding:

> It's really difficult for [some teachers] to try new things. There's a lot of pushback, I guess. The other thing is fear… that we won't uphold the rigor that we want to, that we'll make things either too easy for the kids and then we're going to lose engagement, or too hard for them, and then we'll lose engagement also.

Assessment and reporting. Both participant discussed frustration with the culture surrounding assessment and reporting in the Academy. As discussed earlier, one

participant described that, for many, a culture fixated on grades had resulted in a feeling of "transactional" relationships, which could inhibit teachers from building community in their classrooms. Additionally, one participant described the impact of grades and assessments as "currency…if [a student's grades] are jeopardized in some way, they are going to go to the deans, and then the deans are going to call us, and then we've got a problem." However, one participant discussed that as universities continue to shift away from traditional reporting methods, Punahou has an opportunity to embrace alternative forms of assessment and reporting and "blow up the current structure."

Professional learning resources. Punahou has an abundance of professional learning monies that are used to promote the professional growth of its faculty and staff. In addition to funding a number of initiatives and visiting scholars, every Punahou faculty member receives an annual professional development allowance, as well as the opportunity to apply for additional learning fellowships and grants to request additional funds. Participants in Case Study Four cited access to these funds as important in supporting their professional learning. However, one participant shared challenges with the current funding structures, sharing that in their role they were often relied upon to support other teachers, and to effectively do so they would spend money from their professional development allowance. The result of this collaboration often left their professional learning funds depleted or empty. This participant added, "I feel like [the administration has] taken a broad brush approach to professional development," perhaps suggesting that equal allocation of professional learning funds was not maximizing their potential. When asked about the other grant and fellowships this participant shared "I find the awarding of those [funds] to be very opaque, and arbitrary." Lastly, this participant

also question the net-gain associated with the cost of funding a visiting scholar, adding "we pay people $30,000, $40,000 [for a visiting scholar] to come [and] speak. How does that help your average teacher?"

However, in addition to professional development resources, case study participants and members of the Academy department chair focus group were quick to discuss how Punahou's culture of continual development and numerous mechanisms for professional learning have been key in supporting teacher innovation across campus. Focus groups members discussed opportunities from K-12 professional development days, Academy learning walks—a practice started this last year where Academy teachers and administrators visit and explore each other's classrooms, the faculty partner program, and the Haku Year evaluation program as all being helpful when growing teaching practice and a culture of openness and innovation.

Push towards openness and learning. Perhaps one of the most significant mechanisms cited by case study and focus group participants as increasing innovation, has been a continual push towards openness and learning amongst faculty in the Academy. This has been exemplified through practices like learning walks, as mentioned earlier, but also a commitment to experimentation outside normal departmental areas, including around the development of a K-12 learning commons, cafes, makeries—workshop spaces designed to give students and teachers room to prototype and develop objects that have been designed from the learning process, and even a sleepery—a designated area on campus for Academy students to nap or meditate, as well as a culture of support and inquiry manifested by administrations and most teachers.

Case study four summary. A number of important themes surfaced during interviews with case study participants and the Academy department chair focus group. These themes are best categorized into the following three categories: experiences and motivations that impact innovative teachers, coming to embrace innovation in grades 9-12, and organizational considerations that impact grades 9-12 teacher innovation.

Participants in Case Study Four discussed experiences and motivations that have impacted the development of their innovative practices. Amongst the most significant was the commitment to building community, the practice of transferring values, and empathy for students. Both participants cited ways in which building community had become an important motivator that has increased classroom innovation. For one teacher this stemmed from a feeling that, within a large school, student learning decreased when students were disconnected from one another and their teachers. While the other participant discussed a connection between student care and student achievement, adding, "if the kids love you…they'll want to learn from you."

Both participants discussed the importance of transferring values to their students as a key motivator to their teaching practices. The specific values modeled or conveyed in the classroom sometimes varied by participant, but included a commitment to exploring ethics, modeling informed citizenry, modeling resiliency, and both participants discussed a commitment to developing the character of their students.

Participants also discussed ways in which increased empathy for students has impacted innovation, adding that poor experiences and struggles as a student had helped focus their work to keep the needs and perspectives of the students at the forefront of the curriculum.

Participants also discussed numerous ways in which they've come to embrace innovation in grades 9-12. Among the numerous phenomenon discussed, a commitment to student engagement and gleaning ideas from others were of great importance. Both participants described increasing student engagement as key to leading their innovative practice. In particular participants discussed frequently monitoring and adjusting classroom activities to increase engagement, emphasizing relevant classroom exercises, and other techniques to grab student attention.

Participants were also quick to describe the importance of gleaning ideas from others to lead their innovation. This included connecting with colleagues within Punahou, and for one participant in particular, tapping into a vast network outside of Punahou via Twitter.

Numerous organizational mechanisms that impact innovation were discussed including the importance of professional learning resources, the impact of curricular autonomy and alignment, and a push towards openness and learning by the administration.

Access to professional learning resources was noted as being important to innovation, especially professional learning allowances, access to curricular grants, and other structural supports, like the Haku Year evaluation program.

Curricular autonomy and alignment amongst grades 9-12 participants was cited as having both a positive and negative impact on supporting innovation, as in some cases teacher autonomy helped teachers experiment with curriculum, where in other cases lockstep teaching practices felt stiflingly by some participants.

A push towards openness and learning by the administration was noted as an important mechanism for supporting innovation in the Academy. Participants shared ways in which a cultural acceptance for innovation was helping to move ideas forward. Evidence of this impact is visible through the Academy's commitment to G-Term, piloting programs like a makery, sleepery, and cafe, as well as smaller opportunities like the practice of learning walks.

Cross Case Analysis

Overview. An examination of major themes from each case study has provided a rich cross case analysis that further reveals ways in which innovative teachers at Punahou have come to embrace their innovative practice. These major themes have remained categorized in the following areas: experiences and motivations that impact innovative teachers, coming to embrace innovative teaching, and organizational mechanisms that impact innovative teaching

Experiences and motivations that impact innovative teachers. Participants from each case provided numerous examples of experiences and motivations that influenced their path towards innovative teaching. Although data varied by individual, it included a number of unique examples including important childhood experiences, experiences supporting at-risk students, the influence of mentors, and diverse backgrounds in experiential learning, to name a few. Amongst the data shared by participants, major themes surfaced in the areas of empathy for students, a commitment to building community, and a dedication to transferring values to students.

Empathy for students. Among the most significant themes discussed by participants included their empathy for students. This theme manifested itself in many

ways but was most pronounced in areas that included a teacher's ability to relate with student perceptions of school, and supporting student learning needs. At least one participant from each case study, shared ways they related well with their student's perceptions of school and discussed a variety of important experiences including being bored as a student and a desire to provide learning opportunities that were most relevant for the age of students they were teaching. One participant summarized this perspective best, sharing:

> If you remember what it's like to be an [elementary school student], and if you can empathize with your current [students], it will lead to innovation. I don't think you can empathize with students and keep them in workbooks all day and test them to death with bubble tests.

Although varying aspects and styles of empathy could be found within each case, in particular, teachers from grades K-5 discussed this style of empathy the most.

Additionally, teachers who discussed empathy in the terms of supporting student learning needs commented on past experiences struggling in school or working with struggling students as shaping this motivation. This variation of empathy was most notable with participants in grades 2-12, and was shared by a middle school teacher who described how being a parent had grown his empathy for students, sharing, "having three children, I've learned a lot about how children think by living through their lives with them." This participant went on to describe how this influenced their classroom, adding "[before] students go home, [as a teacher] you tell them, 'Oh, come back tomorrow with your homework,' but [as a parent] when you watch them come home and struggle or try to understand an idea, you realize he or she didn't get that thing that happened in class."

Building community. Efforts to build community were cited by participants in all four case studies as being a significant motivation for developing innovative practices. In particular, a commitment to building relationships with students, teachers, and parents was an important theme for participants in grades K-8. One K-1 teacher discussed this perspective, sharing "I think that parents are a key player in a [child's] education…I believe in engaging parents, so our parents come with us, their grandparents come with us on all of our trips…If children are painting, we ask the adults to paint too." A participant in Case Study Two shared that he felt students were more likely to remain engaged and act respectfully if as a teacher you took steps to develop relationships with parents, or as he put it "I believe the teacher on the first day of school becomes a family member."

On the other hand, participants in grades 9-12 focused community-building efforts on developing relationships amongst students in their classes in order to increase learning. One teacher from this case described the importance of building community amongst students when he realized that his students did not know each other well and some did not even know each other's names. He described this experience, adding "[I've had to ask myself] how do you see the classroom as a group of people working together rather than just a collection of individuals?" It's plausible that a refocus to developing relationship amongst students in the grades 9-12 becomes a greater priority in comparison to lower grades, because students in the Academy are not in self-contained classrooms or purposefully developed teams to promote community, which could likely lead to less opportunities to know your neighbor or for regular community building in this division.

Transferring values. Participants in Case Study One and Case Study Four discussed the importance of transferring values to their students as an important

motivation for their innovative practice. In grades K-1, participants discussed the values of independence and risk taking as being important, which may stem from the teacher's commitment to help the school's youngest learners to embrace the many new challenges that come with entering a school. One participant described this desire to help students embrace this challenge, adding, "I teach them how to make decisions so that they can [choose] for themselves instead of me just controlling everything that goes on. I need to step back and give them independence and believe that it will turn out well."

Contrastingly, in grades 9-12, participants discussed a commitment to exploring ethics, modeling informed citizenry, modeling resiliency, and both participants discussed a commitment to developing the character of their students. Of course, the values emphasized by K-1 teachers are still valued by all teachers, but participants in grades 9-12 focused on what was called "life values," or as one teacher described, areas of character and importance to Academy students. Another participant in this group described this important role, adding, "I try to model the kind of person that I hope they end up [becoming]." Adding, "that it doesn't really matter from a curricular standpoint what I do," if a student does not grow in the basic areas of character development while in my classroom.

Coming to embrace innovation. Participants across Punahou shared numerous examples of how they've come to embrace innovation and what leads their innovation. These examples included following current trends and research in education, a commitment to fostering global connections, demanding relevant experiences for students, and a commitment to skills over content, among other significant themes. Additionally, important and common themes were seen across multiple case studies in

the areas of embracing student inquiry to lead innovation, teacher curiosity and drive to innovate, and gleaning inspiration from others.

Embracing student inquiry to lead innovation. A common theme shared by participants across grades K-8 was a commitment to embrace student inquiry to lead innovation, particularly in the areas of trusting learners and personalization of the curriculum around the unique passions and learning needs of each student. Numerous participants in Case Studies One through three-3 described the importance of trusting students to lead the direction of classroom learning and instruction, which is an important ingredient for inquiry-based learning. One K-1 teacher discussed that through trusting learners to make decisions that impact classroom activities that they had found student learning would grow in great ways that they could not have anticipated, adding, "I trust the kids, because there's a certain depth to children and there is a certain desire that if you really give them some opportunity and really trust [them] you're going to get good questions, if you cultivate that." The teaching team from Case Study Three reiterated the value of trust when adding, "giving up the control is the most worthwhile thing because that's when the kids learn the most."

Additionally, teachers in these same grade levels discussed a commitment to personalizing curriculum to fit the unique needs and interests of each student and the class as a whole each year. One participant from Case Study One discussed the importance and challenge changing curriculum each year when sharing, "every year your children are different, and their interests are different, and their questions are different, or their difficulties are different, and so you can't do the same thing every year or you will miss those children that come to you differently." Teachers also echoed these same

sentiments in Case Studies Two and 3, but this did not surface as a major theme in grades 9-12.

Teacher curiosity and drive to innovate. Another important theme that inspires and leads the work of innovative teachers across multiple case studies was a teacher's willingness to follow their curiosity, as was an innate drive to innovate. Numerous participants from each case study discussed how teacher curiosity has been an important factor to lead innovation, or as one participant from Case Study Three shared, "If I'm not entertained, or if I'm bored, then I'm not a good teacher." Although for some teachers within each case, satisfying their curiosity was just one component to a deeper commitment and innate drive to innovate. In particular, one participant from grades 2-5 discussed a history of always innovating and "pushing the envelope." Additionally, the teaching team from grades 6-8 echoed similar thoughts when describing their flexibility and practice "to just jump in and try something."

Gleaning from others. With such a vast and diverse campus, it's not surprising that numerous participants discussed the importance of gleaning ideas and practices from others as being an important source of inspiration for innovation. In particular, participants from Case Studies One and Three discussed the value of learning from others across campus especially for teachers who learn more socially and through connections. Interestingly, at least six of the ten participants shared that Twitter was an important tool for connecting with others outside of Punahou to help inspire their work on campus.

Organizational mechanisms that impact teacher innovation. Numerous organizational mechanisms were cited by participants in each case study as impacting their innovative work. Divisional structures, time and schedules, assessment and

reporting, culture, and tradition were among some of the numerous themes discussed by teacher participants and the curricular leadership focus groups from each division; however, the most significant themes discussed included professional learning resources, teacher autonomy and accountability, and administrative support.

Professional learning resources. Participants from each case study discussed the importance and prevalence of professional learning resources to support and promote the work of all teachers, including in the area of innovation. In particular, special note was made in regards to Punahou's commitment to funding individual teachers, benefits that come from learning together, and the need for proper follow up around shared school-supported experiences. Access to professional learning allowances as well as the learning grants program was discussed across division as an important mechanism for advancing innovation; however, one Academy participant discussed frustration with a perception of inequity that comes when Punahou spends a large amount of money to sponsor a visiting scholar but some learning grants remain unfunded. Additionally, participants and administrators from grades K-5 mentioned that when large group learning opportunities are developed and also well-supported before and after, curricular change is easier to facilitate, although until recently this has not always been the practice.

Teacher autonomy and accountability. Participants across multiple case studies and school divisions discussed the benefits and challenges associated with Punahou's culture of teacher autonomy and a need for greater teacher accountability. Teacher participants and curricular leader focus groups in each division discussed that the freedom and autonomy for teachers to explore and shape curriculum is a key ingredient to teacher innovation. On the other hand, unclear curricular goals and a need for greater

teacher accountability around expected practices hinders part of the school from moving curriculum forward. This last point was noted most by participants in grades K-5, and was described by on participant in Case Study Two who shared, "there's administrative push to move forward…but the reality is, here teachers get the choice, which is kind of really interesting to me." Another participant from this case went on to add:

> I know supervisors sometimes don't address certain teachers who haven't made changes or that are having difficulty with certain things…but because maybe there's so much autonomy those teachers will say right back to the [supervisor] "this is what I'm doing and this seems to be working."

One K-5 administrator discussed some resentment from teachers who have been willing to change, when describing a discussion that took place in a meeting about this topic, adding:

> In one of my conversations [with teachers] ...they expressed a desire, from the faculty, to say, "okay, we're willing to put in the time [to learn this new practice], but as administration, are you guys willing to hold people accountable to the things that we say are in the best interest of kids?" It was a really interesting meeting, where they were all on board, but then, there was this hesitancy…like, okay, if we're going to stick our neck out, is there going to be the administration behind us, supporting us, saying, "Yes, this is good, and you laggards ...[better move forward too]."

To the credit of the K-5 administrators, it appears that some effort has been spent trying to move teachers through professional development opportunities, but a culture of

autonomy and insufficient accountability mechanisms has inhibited this work from being fully realized.

Administrative support. Participants across case studies described ways in which support from administration had been helpful in moving innovative practices forward. In K-1 this was manifested through efforts by administration to coordinate specific grade level professional learning in the area of math. Additionally, Academy participants noted that a push towards openness was helping to advance a number of innovative initiatives in the grades 9-12 division. In the Academy this has been exemplified by a commitment to experimentation outside normal departmental areas, including around the development of a K12 learning commons, experimental makeries, cafes, and sleeperies, as well as a culture of support and inquiry manifested by administration and most teachers. Participants also described successful experiences with grades 2-5 and 6-8 administration to move ideas forward; however, some participants in these case studies shared experiences of not feeling as thoroughly supported by administration and that this had hindered their innovative work.

Cross case analysis summary. A cross case analysis of the four case studies revealed a number of important themes in regards to teacher innovation at Punahou School. These major themes are categorized in the areas of experiences and motivations that impact teacher innovation, coming to embrace innovation in grades K-12, and organizational considerations that impact teacher innovation at Punahou.

Each participant in the four case studies discussed numerous important experiences and motivations that have influenced their path towards innovative teaching. Most significantly was a teacher's empathy for students, which can have a major impact

on classroom experiences and will be discussed in the final chapter. Additionally, a commitment to building community, albeit with differing emphasis at each division, surfaced amongst participants as a significant motivator for innovative teachers.

When discussing how teachers have come to embrace innovation, participants placed emphasis on the importance of embracing student inquiry to lead classroom experiences, teacher curiosity and a drive to innovate, and gleaning inspiration from others as important shared themes across each case study. Additionally, teachers shared that as their careers have evolved, innovative practices came after establishing a strong curricular foundation, which is discussed in more detail in the following chapter.

Case study participants cited a number of organizational mechanisms that impact teacher innovation at Punahou. Although mechanisms varied by participant, common themes included the impact of professional learning resources, which is further impacted by a culture of continual professional learning, as well as the effect of a culture of teacher autonomy that has not fully assessed the need for clear curricular and professional accountability around shared teaching values and strategies.

Finally, although not directly addressed in the cross-case analysis, a number of important divisional differences are evident amongst the four case studies and will be discussed in the following chapter. Of particular note is a difference on the emphasis and support of student-inquiry to lead classroom instruction amongst the various school divisions, which is in part due to current divisional structures.

FINDINGS, RECOMMENDATIONS, and IMPLICATIONS

The preceding chapter includes a thorough review and analysis of the data collected from each of the four case studies, which is organized into a variety of key categories and themes. Chapter 5 will build on this analysis and present the study's findings with regard to the four research questions, a discussion of potential recommendations for consideration by Punahou School, as well as a description of limitations and other important implications from the study, including possibilities for future research. Lastly, the chapter will close with a reflection by the researcher and concluding remarks.

Findings

Research question 1: What experiences and practices have motivated teachers to become more innovative?

Empathy for students impacts classroom experiences. A teacher's empathy for their student's experiences in the classroom emerged as a powerful and important theme across each of the four case studies. As shared in Chapter 4, the origins of this empathy varied by teacher, but included teachers who recalled experiences as a student at a particular grade level, which was particularly positive or negative. The other group included teachers whose empathy is related to their commitment to advocate for student learning needs. Teachers who discussed their experiences as a student also reported that these experiences helped them relate with the life of their students. This theme surfaced in the thoughts of a teacher who shared:

> I want my classroom to be 51% fun and 49% learning, because that 49% will stick so much more if [the students] want to come. If it's 51% fun,

> they want to come. They wake up in the morning and they want to come. Kids like craziness, they like fun, they like humor. I think when you empathize with the students and what their worlds are like and how coming to school can either be the biggest bummer in the world or a huge joy in their life, that just leads to you being innovative. If you want them to enjoy school as a joyful place, I don't think a teacher would ever settle on a traditional classroom.

Similar to this teacher, other study participants whose empathy originates from their experiences as a student provided stories and examples of student learning, that in part focused on fun and enjoyable student experiences.

Teachers, whose empathy is related to their commitment to advocate for student learning needs, shared numerous experiences that had grown this variety of empathy that ranged from experiences as a parent to ways in which they had developed a commitment to advocate for students with distinct learning needs throughout their career. One grades 2-5 participant described this commitment, adding "throughout [my life], empathy has been a huge part of it and [finding] how I can help others. That is one thing that really leads me." This teacher goes on to add "the hardest thing is when I see children struggling and giving up and I want to be able to help them overcome that. That's what drives me the most."

Although these two types of empathy have been described separately, it's important to note that the motivation behind a teacher's empathy was not always so distinct. Teachers who related strongly with the student experiences in the classroom because of positive and negative experience as a student, might also be motivated by

empathy that originates with a commitment to address specific learning needs in the teacher's classroom, and the opposite would be true too. Additionally, numerous categories and themes that emerged in this research relate to a teacher's empathy for students, from teacher motivations to a teacher's inspiration for innovative practices. Therefore, it's worth noting, that embedded in the nature of classroom innovation is a teacher who is deeply empathetic to the needs of their students.

A commitment to building community in and out of the classroom. A commitment to building community between school and home, as well as amongst students, was a common theme discussed by participants in all four case studies. Notably, teachers in grades K-8 discussed in greater length the importance of developing connections between school and home, whereas teachers in grades 9-12 focused their community-building efforts amongst students. Perhaps it's not surprising that teachers in grade K-8 indicated a greater commitment to developing connections between school and home, since at these grade levels parents are often much more involved in the day-to-day needs of their student. Consequently, when this commitment is lacking by parents, the impact on the student may be more acute. One grades K-1 teacher described this experience when sharing, "if I can get their family involved and I can get their family to understand why [they] are doing the crazy things [they] do, that's going to support their child's growth." This was also supported by a grades 6-8 teacher who added, "Before we can even open up our classroom and teach them content, we have to develop that relationship with them. Not just with them, but also a positive relationship with their parents is important." Research shows that this is not just good practice on the part of the teachers, but that soliciting the support and involvement of numerous stakeholders,

including parents, is critical to supporting students and raising student outcomes (Pope, Brown, & Miles, 2015, p. 164)

Teachers in grades 9-12 also care about fostering relationships with the parents and guardians of their students to some extent, but a notable difference with these teachers was the focus placed on supporting community-building amongst and with the students. Again, this is likely due to the distinct needs of this age of students and the nature of the grades 9-12 student experience at Punahou, which includes the reality that there are over 450 students in each grade level with at least 160 students whose Punahou experience started as late as seventh grade. One Academy participant described the motivation for this type of community-building when describing an experience where he discovered halfway through a semester some students did not know the names of other students in class, because besides his class most of these students had few additional connections to one another on camps. This instinct, by Academy participants, to develop community and stronger bonds with and amongst students can also support positive academic outcomes, confirming a conclusion that "students are more likely to achieve higher grades and test scores, are more motivated and more engaged in school, and are more likely to persevere in the face of difficulty when they feel connect and supported by others in school" (Pope et al., 2015, p. 136).

Research question 2: In what ways do teachers come to embrace innovative teaching practices?

Content familiarity before innovation. An important question discussed with participants included: how have your teaching practices evolved over your career? Amongst a variety of topics discussed, numerous participants noted that an important step

in growing their innovative practice came first after developing a familiarity, if not mastery, for the content in which they were teaching before exploring more innovative ways to teach the curriculum. One grades K-1 teacher described this phenomenon when sharing:

> I think how it's evolved is it just took me about five or six years to get really comfortable with the content and the pedagogy. When I came to Punahou, it was just the right time. It was the right job at the right time in my teaching career so I could really learn about these new twenty-first century tools and techniques, but my pedagogy and content knowledge were strong so I was able to seamlessly and really easily start integrating things to make a difference.

This point was reiterated by a teacher in grades 9-12 who added, "I think that initially, [teachers ask]: can I just get the content down?" This teacher went on to add "[from there] I've seen teachers evolve…because the kids will find out right away whether you know what you're talking about or not, and then you move from that to [innovating] a variety of things."

Interestingly, an average of 24.1 years of teaching was shared amongst the ten participants in this study which is significantly greater than the less than five years of experience indicated by other studies (Yang & Huang, 2008; (Loogma et al., 2012) as having a higher likelihood for teacher innovation.

Embracing student inquiry to lead innovation. Participants from grades K-8 were quick to point to the importance of embracing student inquiry to lead innovation, but interestingly this was only briefly mentioned by participants in grades 9-12. When

discussing ways in which student inquiry was important in grades K-8, teachers focused on the theme of trusting learners and looking for opportunities to personalize instruction to the interests and passions of the students. This theme echoed across each division starting with a grades K-1 teacher who shared, "if you really give them some opportunity [to explore] and really trust that you're going to get good questions, if you cultivate that… [the kids] will take you in amazing directions that you've never even thought of [before]." Likewise, teachers in grades 2-5 shared numerous examples of inquiry-based learning experiences that supports student choice to drive curriculum, which often manifests itself when teachers encourage students to explore more about their own interests or to seek answers to an intriguing question as a component of the curricular unit that is being taught. For examples, some K-8 teachers have begun to incorporate Genius Hour into their teaching, a practice where teachers relinquish some curricular control and set aside time for students to explore their own interests or questions as part of a larger curricular goal. A participant from grades 6-8 discussed the relationship between trusting learners and giving up control by sharing, "giving up control is the most worthwhile thing [we do] because that's when the kids learn the most." This approach requires vulnerability on the part of the teacher who must be willing to release control and trust that inquiry and curiosity is worth cultivating in a student, but may not always result in linear methods of learning or efficient use of class time.

An effort to embrace student inquiry in grades 9-12 took a different form that might best be demonstrated through a teacher's commitment to developing relevant classroom experiences for their students within the guidelines of the set curriculum. One grades 9-12 participant described this method when explaining their yearly commitment

to connect with their class to best understand what techniques and strategies would work best for this particular group of students. This participant also described how flexibility to differentiate homework expectations for students helped increase the relevancy of homework for her students. Additionally, it's evident that grades 9-12 participants, like all case study participants, sought ways to make the curriculum relevant by including topics that were of particular interest to the grade level and the students they teach. In the instance of Academy students these topics were vast and complex. However, it's worth noting that although aiming to include relevant curricular selections is a step towards embracing student inquiry, teachers in grades 9-12 did not share many specific examples of the same type of inquiry-based learning experiences explored by teachers from this study in grades K-8. This could be a for a number of reasons but may be related to the less flexible curricular structures that exist in the grades 9-12 division.

Teacher curiosity and an inherent drive to innovate. An important question asked to all participants included: what leads your innovation? In response to this question, teachers discussed a wide range of topics and sources of inspiration, but perhaps not surprisingly, teacher curiosity and an inherent drive to innovate surfaced as an important theme amongst numerous participants. A participant in the K-1 division described the impact of yielding to her curiosity when sharing, "I've found that anytime there's something new in my life or new in my learning, or new in my environment, I try to bring that to my children." One teacher in grades 2-5 described their openness to innovation stating, "I'm always innovating something." Whereas a teacher in grades 6-8 shared "Why do something? I'm just curious," and a grades 9-12 teacher explained "I just get bored with doing things one way, I just can't do it."

Gleaning ideas from others. Amongst the numerous strategies and techniques described by participants to inspire innovation in the classroom, perhaps the most important discussed was the value that participants have found by learning from others both inside and outside of Punahou. Numerous participants described the rich value of connecting with the vast and deep experiences that are represented across the Punahou ʻohana. Additionally, Twitter was mentioned by participants from each division as being an important conduit to gather innovative ideas.

Research question 3: In what ways is teacher innovation impacted by organizational structures and practices?

***A culture of supporting professional learning*.** As mentioned in the previous section, many research participants discussed the importance of gleaning ideas from others, and one reason why this phenomenon occurs is likely related to a supportive culture of professional learning that pervades Punahou. In addition to support for individual endeavors, participants discussed the impact of school sponsored visiting scholars, various coordinated learning that has been developed around particular initiatives, as well as the benefit of administration that supports and encourages teachers to experiment and try new classroom strategies.

On the other hand, not all professional learning experiences were viewed equally beneficial by participants and multiple participants discussed frustration with inadequate follow-through by the administration to leverage change around some of this work. Additionally, although a culture of professional learning is accepted, some participants mentioned experiences where they felt isolated or ostracized by some teachers for supporting and promoting an innovative idea. This experience was echoed by an

administrator who discussed witnessing "backlash" towards some teachers who promoted an innovative practice or even prototyped a new style or teaching strategy that was promoted by the school.

Robust funding for professional learning. In addition to a positive and supportive culture of professional learning, it cannot be overstated that this culture has benefited greatly from a well-stewarded endowment and a commitment by the administration to dedicate significant resources towards teacher professional learning. In the 2015-2016 school year this combined numbered topped over $1.8 million and accounted for 1.63% percent of the school's operating budget. Therefore, it may not be surprising that participants discussed professional learning funding as an important mechanism for advancing their innovative work.

Even though participants were quick to discuss the ways in which professional learning funding has supported their work through access to individual professional learning allowances, teaching and learning grants, sabbaticals, and other funding streams, some participants also noted perceived inequities in funding. One participant described the selection process for learning grants as "very opaque and arbitrary," while another participant shared a perception that some teachers have questioned distribution of funds and this participant described this perspective when adding, "why is it that…those people are [always] highlighted? Why is it that [the same teachers] always get the funds?"

Tension between curricular autonomy and teacher accountability. Numerous participants discussed the freedom that is provided to teachers at Punahou to design and develop curriculum and classroom activities with significant autonomy. Although efforts have been made to articulate curricular goals, Punahou teachers have notably more

freedom than peers at other schools to direct the learning in their classroom. This phenomenon has likely helped participants from this research study prototype and explore new avenues for learning that would not be possible at schools with more traditional curricular expectations. One grades 9-12 participant described an experimental aspect of this curricular freedom, adding, "the Academy seems to be very successful in terms of [conducting] pilots." Similar sentiments regarding opportunities to explore new ideas were echoed by participants across multiple divisions.

Although the value of curricular autonomy is highly supported at Punahou, the practice of developing a culture of teacher curricular accountability has not been as successful. Participants noted the challenge this has created around advancing curricular initiatives, which was explained by one participant who described administrative efforts to advance an idea when adding, "there's administrative push to move forward…but the reality is, here teachers get the choice [whether to participate]." Another participant described a similar need for teacher accountability, stating:

> Teachers here at this school have had this autonomy to teach the way they want, but if there is a new idea or some new practice that would be very beneficial, it gets talked about. They might bring [an expert] in to do some training, or a speech, or a talk, but then after that, there's not much else. The teachers could either choose to go that route or they could ignore it completely, and there's not this accountability piece. I kind of feel like there needs to be a strong leadership focus in that innovative thinking, that it's going to almost, not force innovation, but really encourage it.

It's worth noting that teacher autonomy and teacher accountability are not a mutually exclusive phenomenon. In fact, it's possible to provide great curricular freedom within set expectations that include accountability mechanisms. For example, this could include the use of curricular maps that utilize agreed upon learning outcomes, but that provide flexibility in the development of lesson plans. Unfortunately, these mechanisms are currently not fully developed to advance coordinated curricular change.

Research question 4: What propels teachers to be innovative within any grade level cluster/division in a school?

A growing focus on providing student choice in the Junior School. As mentioned earlier in question Two of this section, an important phenomenon to advance innovative teaching in the Junior School has been the focus on providing inquiry-based experiences for students that rely on student interest and self-direction to guide classroom experiences. Multiple participants from kindergarten to middle school described ways in which this has become a powerful tool for growing innovative teaching, and twenty-first century learning skills like collaboration, creativity, critical thinking, and communication. On the other hand, although all teachers want to strive to increase student interest, participants from grades 9-12 described some experiences that limited their ability to engage student inquiry, especially in core classes that are taught simultaneously by multiple teachers, or in "lockstep" as one participant described it. This, of course, does not mean that inquiry-based learning is not valued or growing in the Academy; in fact, participants and curricular leaders discussed that the curricular freedom in elective classes is where this is more likely to occur.

It is possible that this difference in the Junior School is partially due to greater curricular autonomy provided to all teachers, even in core classes, and conversely, in the Academy there are a larger number of teachers who teach courses that have a particular content focus. In fact, it's apparent that there is less focus in the Junior School on curricular alignment, which can be problematic, but may also provide a more suitable climate for developing inquiry-based learning experiences.

Divisional structures. Participants at multiple divisions discussed ways in which school structures have an impact on innovation. In particular, participants from grades K-1 and grades 6-8 shared ways in which flexible schedules have greatly influenced a teacher's ability to enhance student learning and support innovation by modifying the class schedule, sometimes even at the last moment. Additionally, the unique makeup of interdisciplinary teaming associated with the middle school level has promoted natural opportunities for collaboration and curricular integration. These benefits in the middle school may be due in part from a student schedule that provides common planning times for teaching teams to meet to discuss curriculum planning and student needs. Furthermore, Punahou's core-subject middle school teachers' (math, science, English, and social studies) teaching and planning load is limited to only one class, which is taught to each section of students; whereas, teachers in a self-contained classroom in the lower school are responsible for incorporating multiple subject areas into their planning, and Academy teachers may be responsible to teach multiple subjects to a variety of students and grade levels. Finally, Case Middle School was designed so that teaching teams would work with the same group of students (96 students in sixth grade and 92 students in seventh and eighth grade), with adjoining classrooms and workspaces, which supports

curricular collaboration since all students work with the same teachers, and this also lends itself to the development of a distinct climate and community on each team.

On the other hand, participants from grades 9-12 discussed ways in which some structures in the Academy might have damaging effects on teacher innovation. In particular, participants discussed how the practice of changing student schedules at the end of the semester, even during year-long courses, can be disruptive for building student relationships as it results in shuffled class rosters every semester. This also necessitates the "lockstep" curricular practice, which participants discussed as inhibiting innovation, differentiation, and personalization of learning in non-elective courses because students will likely have a different teacher in each semester of this course.

Targeted professional development. Participants confirmed that individual professional development allowances have been very helpful in supporting teachers in the pursuit of their professional learning passions. Additionally, school-sponsored professional learning experiences, including hosting visiting scholars has also had some benefit, although as mentioned earlier, its impact can be limited if follow up is not provided. However, in the instances where clear expectations of participation and ample follow up supports were provided, participants discussed that this model of professional learning was very helpful. For example, grades K-1 participants described that targeted professional development in mathematics has been helpful and generally well-received be teachers in this division.

Recommendations for Punahou School

A close examination of participant and focus group interviews has surfaced a number of recommendations that Punahou may want to consider to support the work of innovative teachers, as well as advancing the values and aspirations discussed in the *Aims*

of a Punahou Education (Scott, 2013). Some of the recommendations are specifically targeted towards individual divisions within Punahou, while other recommendations would provide benefits if pursued across the entire campus.

As indicated in the previous section, participants, especially in grades K-5, discussed the challenge of growing significant teacher support for various ideas or strategies being promoted by administration, except in instances where targeted professional development was provided and followed up with additional support. Therefore, Punahou might consider increasing targeted professional development opportunities for grade levels and across a division to support a specific topic or initiative similar to what has been done recently with math in grades K-1. This would be in addition to continuing to support individual professional development funding, which participants described as beneficial. In addition to advancing a particular teaching strategy, benefits might also include helping to address "innovator backlash" that was discussed by some administrators, as it would shift expectations for advancing new ideas away from a process that exposes the willing to suspicion by reluctant teachers, towards coordination of support and clear expectations for all teachers.

Increasing targeted professional development opportunities might also help administration more effectively address the dynamic between teacher autonomy and teacher accountability that was discussed by participants as hindering some teachers and grade levels from adopting a particular teaching strategy or curricular change. However, it's worth noting that this shift will likely expose current gaps in Punahou's teacher evaluation mechanisms. Therefore, efforts should be made to explore and adopt a teacher evaluation tool that includes reference to a teacher's openness and adoption of teaching

practices that align with the *Aims of a Punahou Education* (Scott, 2013) and the current efforts being advanced within the grade level or division.

Participants in grades 9-12 discussed a variety of ways current structures in the Academy impact the advancement of teacher innovation and community building within and amongst students and teachers in core curricular courses. Amongst the challenges discussed by participants, "lockstep" teaching practices as well as common assessments in core classes were listed as hindering innovation, as it inhibited teachers from personalizing instruction for individual students and to the whole class, as needed. It's likely that the practice of "lockstep" instructional alignment was developed to address a number of complex interests including ensuring fairness across classes being taught by multiple teachers, which can be particularly challenging in a school as large as Punahou. Still, renewed efforts to uncover competing interests in this area, like ensuring alignment across common classes and supporting a teacher's efforts to personalize instruction, should be reexamined. Therefore, it is recommended that the Academy administration begin to explore the impact of coordinated "lockstep" courses to determine if there are particular practices or adjustments that might ensure rigor and alignment but also support a teacher's ability to craft classroom experiences that are more responsive to the needs of a student or class.

Additionally, participants discussed the practice of shuffling student rosters at the beginning of second semester, which results in most students having different classmates and teachers in year-long courses, as impacting a teacher and a student's ability to develop community. This, too, is related to "lockstep" curriculum alignment, or might be the partial cause of this practice, since the result of shifting students into new class rosters

each semester has perpetuated the concerns around ensuring curricular alignment. Therefore, the development and priorities that impact student scheduling should be reexamined to better understand the competing interests that have resulted in the current system and its implications on the supporting the *Aims of a Punahou Education* (Scott, 2013) and values like community building.

As mentioned previously, empathy for students surfaced as a common theme shared by numerous participants within every case study across Punahou and has an impact on a teacher's motivation and inspiration for advancing innovative practices in the classroom. Therefore, efforts to explore and grow empathy amongst teachers might prove to be a helpful tool to advance innovative teaching practices. For example, teachers might be asked to participate in student shadowing, when a teacher follows a student in a different class or grade through their schedule for part, all, or multiple days to help grow a teacher's understanding of the student experience. Although researchers still speculate whether empathy can be taught, efforts to help teachers recognize their empathic capacities and grow a teacher's awareness of their empathic tendencies could be supported through empathy focused activities as part of the redeveloped professional learning or evaluation mechanisms that was discussed previously, such as teacher journaling, role playing, and scenario discussions (Barr, 2011, p. 368).

Implications and Considerations for Future Research

The literature review for this study revealed that much has been written about the practice, demographics, and implications of innovative teachers. However, despite ample studies examining teacher innovation, and a meta-literature review examining the topic as a whole, little mention was made regarding the importance of teacher empathy to

motivate and inspire innovative teaching practices. Therefore, continued research examining the nuances of empathy as well as the effectiveness of developing teacher empathy programs as part of teacher preparation and development programs would be beneficial to growing research in the area of teacher innovation.

Finally, as schools like Punahou move closer to a model of education that purposefully values the Four C's of twenty-first century learning discussed in Chapter 2 and outlined by Wagner and Dintersmith (2015), it would beneficial for the these institution to request data from both alumni and universities about the impact and difference this change in practice has had on a student's success in the future. On this point, if schools are aspiring to grow skills of critical thinking, communication, collaboration, and creative problem-solving, then it's reasonable to expect schools or future researchers to examine methods for schools to measure the growth of these skills in current and former students.

When considering future research opportunities, it would be beneficial if additional efforts were made to clarify the description of teacher innovation, as some survey participants shared confusion about the definition. On this point, it may have been helpful to explicitly distinguish that teacher innovation is only one facet of quality teaching, as it may have been possible for some teachers to assume or interpret the two to be synonymous, which may have resulted in confusion amongst some of the faculty population at Punahou in how participants were identified as being innovative.

The Importance of a Teacher's Empathy for Students

Although discussed previously, it is worth distinguishing that among the key findings in this study is the critical importance and clear link between a teacher's empathy

for his or her students and that teacher's motivation for innovation. Perhaps one participant from grades 2-5 demonstrated this best when sharing:

> If you remember what it's like to be an [elementary school student], and if you can empathize with your current [students], it will lead to innovation. I don't think you can empathize with students and keep them in workbooks all day and test them to death with bubble tests.

This, in addition to other researcher's findings, may be of little surprise to many teachers who already understand that to truly reach a student a teacher must first take the perspective of those they are hoping to teach (Barr, 2011, p. 367).

Despite what may be a fairly obvious finding, empathy is often overlooked by teachers and schools as an area of potential professional learning (A. F. Chang, Berger, & Chang, 1981). Yet, it would be wise for this to change as more emphasis on personalized-learning and differentiation strategies become expected in the classroom. Although participants in this study indicated the importance of a teacher's empathy for his or her students as impacting teacher innovation, no effort was spent developing tools to measure an individual's "empathic quotient." Undertaking this endeavor would be quite interesting and helpful when examining the growth of an individual teacher's tendency towards empathy, or even a school's ability to change its climate and culture.

Moreover, knowing a teacher's tendency towards empathy might help an institution personalize professional development. It could also be helpful to develop empathy-based employment interview questions that surface an individual's empathic quotient, and could perhaps be especially helpful when determining a teacher's likelihood to support newly introduced teaching practices. Regardless of how it is approached, it is

clear that empathy matters, and is perhaps, albeit often overlooked, the key driver to propel teacher innovation.

Researcher Reflections

At the outset of this study it was my naïve hope that by examining innovative teachers at Punahou I might act as a kind-of mouthpiece for this group and perhaps even uncover ways in which these teachers have been stifled by bureaucracy or archaic practices. What I found, at least at Punahou, were teachers for whom little advocating was needed and administrators and practices whose goals and aspirations are mostly in close alignment with the work of these teachers. My misinterpretation of the needs of this community and the results of my study are in part related to my incorrect assumption around the motivations of innovative teachers: that their innovations are mostly a result of their own desire to be innovative. Instead, what I found were teachers, who drawing from both their experiences as students and educators and whom after years of partnering with students, have developed a profound flexibility, willingness, and conviction to meet the diverse needs of all of their students, which is an aspiration all schools and administrators can gladly support.

In retrospect, it's not surprising that empathy for students surfaced as a major theme since I believe at the core of most teachers is a desire to serve and know others; and moreover, for great teachers the center of this core is a reverence and deep understanding for the give and take between a student and teacher. Perhaps, this is what Parker Palmer (1997) is referring to when he says:

> After three decades of trying to learn my craft, every class comes down to this: my students and I, face to face, engaged in an ancient and exacting exchange called education. The techniques I have mastered do not

> disappear, but neither do they suffice. Face to face with my students, only one resource is at my immediate command: my identity, my selfhood, my sense of this "I" who teaches—without which I have no sense of the "Thou" who learns. Here is a secret hidden in plain sight: *good teaching cannot be reduced to technique; good teaching comes from the identity and integrity of the teacher*. In every class I teach, my ability to connect with my students, and to connect them with the subject, depends less on the methods I use than on the degree to which I know and trust my selfhood—and am willing to make it available and vulnerable in the service of learning. (p. 14)

This, perhaps, is the greatest take away from this study: when hoping to identify innovative teachers, or simply quality teachers, start by searching for individuals who embody great empathy for others. Empathy, care for others, the conviction to adjust course for each student as needed, and a commitment to renewal are fundamental ingredients to innovation.

On this point, it's worth noting that although this study aimed to examine the most innovative teachers at Punahou, for the larger population of teachers a regular commitment to renewal and self-reflection is in itself a catalyst for innovation. Punahou President Dr. Jim Scott described this notion when sharing:

> Innovation: I believe the Latin root is *innovatus*, which means "to renew." Most people think of innovation as change, and I have always defined it as renewal. I think if you begin with that context, then for me it helps to broaden and soften it. Innovation usually means you're changing from

> something, you're changing from the status quo, which becomes threatening for people who don't understand why the status quo is not acceptable. For me, teacher innovation is a professional attitude that you're always renewing, always questioning, always thoughtfully reflecting on whether what you're doing in the classroom is still applicable, effective, up-to-date. I think for me, the vision is continuous renewal, and the role of the school is to support and encourage that.

Therefore, Punahou's ability to innovate and produce students who are in alignment with its *Key Aims* will be inextricably linked to its rich culture of self-determined professional learning that's committed to teacher renewal.

Concluding Remarks

As pedagogy and skills adjust and grow in the twenty-first century, the role of an effective teacher can never be disregarded. Even in the most innovative classrooms, effective learning cannot be reduced to a transaction; on the contrary the most innovative classrooms include robust empathic relationships between a teacher and his or her students. The role of the school is to cultivate a teacher's ability to foster this environment through purposeful professional learning that champions personalized learning for all students.

Appendix A: IRB Approval

Office of Research Compliance
Human Studies Program

UNIVERSITY of HAWAI'I® MĀNOA

March 9, 2016

TO: Andrew Aldrich
Steven Shiraki, Ph.D.
Principal Investigators
Educational Foundations

FROM: Denise A. Lin-DeShetler, MPH, MA
Director

SUBJECT: CHS #23794 - "An Examination of Innovative Teaching Practices at Punahou School"

This letter is your record of the Human Studies Program approval of this study as exempt.

On March 9, 2016, the University of Hawai'i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45 CFR 46.101(b) (Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

1960 East-West Road
Biomedical Sciences Building B104
Honolulu, Hawai'i 96822
Telephone: (808) 956-5007
Fax: (808) 956-8683

Appendix B: Head of School Consent Form

University of Hawai‘i at Mānoa
Consent to Participate in Research Study
Head of School

An Examination of Innovative
Teaching Practices at Punahou School

My name is Andrew Aldrich. I am graduate student conducting this study in connection with the Doctor of Education (Ed.D) in Professional Educational Practice Program at the University of Hawai‘i at Mānoa. As part of the requirements for earning my degree, I am conducting this research study. The purpose of this study is to better understand how teachers come to embrace innovative teaching practices, what mechanism impact their innovations, and how they overcome any range of institutional challenges. I am asking your permission for select faculty and administration to participate in this study.

Activities and Time Commitment: If you allow Punahou School to participate in this study I will conduct individual interviews with 8-12 teachers from various grades across the K-12 divisions, each principal, and the Head of School. I plan to conduct between two to three separate focus group interviews with curricular leaders, and teachers across divisions at an agreed upon location and time. The interview/focus groups may consist of 5 to10 open-ended questions and may take 45 minutes to an hour. Responses will be audio-recorded to be later transcribed and analyzed. Approximately 20-30 people from the school will be asked to participate in an individual interview or focus group.

Benefits and Risks: Outcomes of the study may contribute to the growing literature on innovative teachers and how schools might better support innovative teachers and transform to align twenty-first century innovative teaching and learning aspirations with institutional practices when necessary and appropriate. The results will also help Punahou School, in particular, better understand how to support innovative teachers as facilities and programs evolve to support student learning. I believe there is little risk to Punahou School in participating in this research study. All participants can stop any interview or you can withdraw your school from this study at any time.

Privacy and Confidentiality: I will store all data and recordings I collect in this study offline and in safeplace. Only my University of Hawai‘i advisor and myself will have access to the information. The University of Hawai‘i Human Studies Program has the right to review research records for this study.

At the conclusion of the study all data will be destroyed. When I report the results of the research study, I will not use the names or other personal identifying information of any research participant. I will use pseudonyms and report the findings in a way that protects privacy and confidentiality of the participants to the extent allowed by law.

Voluntary Participation: Your participation in this study is completely voluntary. You, as a school, may withdraw your participation at any time. If you decide to withdraw from the study there will be no penalty or loss to you. Your choice to participate or not participate will not affect your rights to services at University of Hawaii.

Questions: If you have any questions about this study, please call or email me, Andrew Aldrich Co-Investigator at 808-783-5987 & aaldrich@hawaii.edu. You may also contact my adviser and Primary Investigator, Dr. Steve Shiraki, at 808-285-8892 and shirkis@hawaii.edu. If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

If you agree to participate in this project, please sign and date the signature page and retain the information above for your records. Thank you for participating in this exciting examination of innovative teaching practices at Punahou School.

Signature(s) for Consent:

I give permission for the school to participate in the research study entitled, *An Examination of Innovative Teaching Practices at Punahou School.*

Name of Participant (Print):

_____

Participant's Signature:

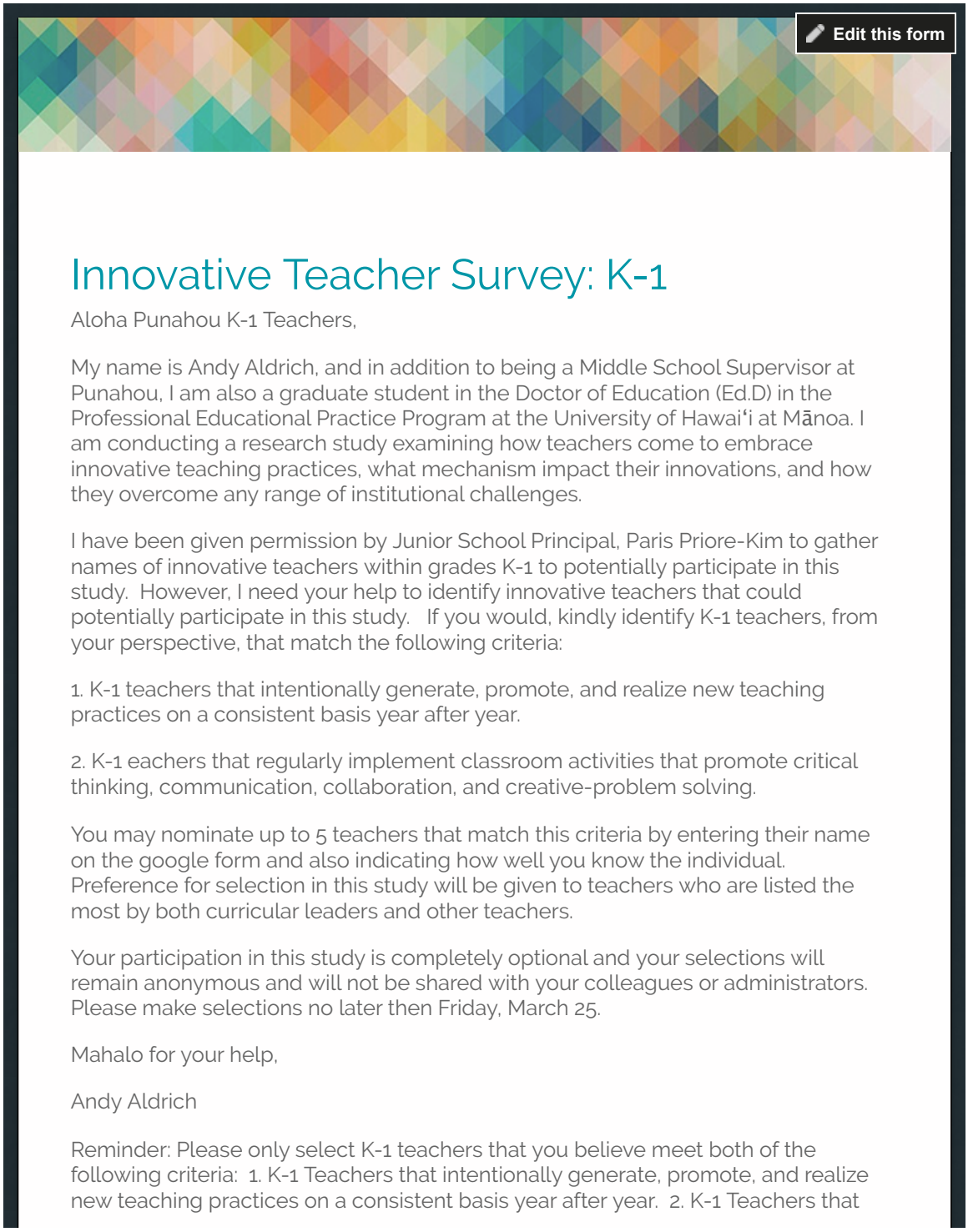
_____

Date: _____

Signature of the Person Obtaining Consent: _____

Date: _____

Appendix C: Teacher Nomination Survey



regularly implement classroom activities that promote critical thinking, communication, collaboration, creative-problem solving.

First Choice

Please enter only 1 name (first and last name) per blank

First Choice: Please indicate how well you know this teacher's innovative practices

	1	2	3	4	
I hear good things, but have limited knowledge of this teacher	○	○	○	○	I know this teacher well and have observed their innovative teaching practices in the classroom

Second Choice

Please enter only 1 name (first and last name) per blank

Second Choice: Please indicate how well you know this teacher's innovative practices

	1	2	3	4	
I hear good things, but have limited knowledge of this teacher	○	○	○	○	I know this teacher well and have observed their innovative teaching practices in the classroom

Third Choice

Please enter only 1 name (first and last name) per blank

Third Choice: Please indicate how well you know this teacher's innovative practices

	1	2	3	4	
I hear good things, but have limited knowledge of this teacher	○	○	○	○	I know this teacher well and have observed their innovative teaching practices in the classroom

Fourth Choice

Please enter only 1 name (first and last name) per blank

Fourth Choice: Please indicate how well you know this teacher's innovative practices

	1	2	3	4	
I hear good things, but have limited knowledge of this teacher	○	○	○	○	I know this teacher well and have observed their innovative teaching practices in the classroom

Fifth Choice

Please enter only 1 name (first and last name) per blank

Fifth Choice: Please indicate how well you know this teacher's innovative practices

	1	2	3	4	
I hear good things, but have limited knowledge of this teacher	○	○	○	○	I know this teacher well and have observed their innovative teaching practices in the classroom

Submit

Never submit passwords through Google Forms.

Appendix D: Curricular Leadership Survey

Edit this form

Innovative Teacher Survey: 6-8 Curricular Strand Leaders

Aloha 6-8 Curricular Strand Leaders,

As some of you know, in addition to being a Middle School Supervisor at Punahou, I am also a graduate student in the Doctor in Education (Ed.D) in the Professional Educational Practice Program at the University of Hawai'i at Mānoa. I am conducting a research study examining how teachers come to embrace innovative teaching practices, what mechanism impact their innovations, and how they overcome any range of institutional challenges.

I have been given permission by Junior School Principal, Paris Priore-Kim to gather names of innovative teachers in grades 6-8 to potentially participate in this study. If you would, kindly identify grades 6-8 teachers in your department, from your perspective, that match the following criteria:

1. Grades 6-8 teachers that intentionally generate, promote, and realize new teaching practices on a consistent basis year after year.

2. Grades 6-8 teachers that regularly implement classroom activities that promote critical thinking, communication, collaboration, and creative-problem solving.

You may nominate up to 10 teachers, from your department, that match this criteria by entering their name in the space below. Please provide teachers nominations in order of who you feel meet this criteria best. Preference for selection in this study will be given to teachers who are listed the most by both you and other teachers.

Your selections will remain confidential and will not be shared with your colleagues or administrators.

Mahalo for your help,

Andy Aldrich

Reminder: Please only select grades 6-8 teachers that meet both of the following criteria: 1. Grades 6-8 teachers that intentionally generate, promote, and realize new teaching practices on a consistent basis year after year. 2. Grades 6-8

teachers that regularly implement classroom activities that promote critical thinking, communication, collaboration, and creative-problem solving.

First Choice
Please enter only 1 name (first and last name) per blank

Second Choice
Please enter only 1 name (first and last name) per blank

Third Choice
Please enter only 1 name (first and last name) per blank

Fourth Choice
Please enter only 1 name (first and last name) per blank

Fifth Choice
Please enter only 1 name (first and last name) per blank

Sixth Choice
Please enter only 1 name (first and last name) per blank

Seventh Choice
Please enter only 1 name (first and last name) per blank

Eighth Choice
Please enter only 1 name (first and last name) per blank

Ninth Choice
Please enter only 1 name (first and last name) per blank

Tenth Choice
Please enter only 1 name (first and last name) per blank

Appendix E: Individual and Focus Group Questions

Individual Interview Questions

Innovative Teacher Interview

1. What do you teach, how long have you been a teacher, was this your first career choice?
2. Describe what experiences have shaped your value and beliefs as a teacher.
3. What leads your innovation?
4. In what ways, if any, do your values as a teacher impact the way you teach today?
5. How have your teaching practices evolved over your career?
6. What inspires the development of new ideas in your classroom?
7. What, if anything, holds you back as you innovate in your teaching practice?
8. In what ways do you see innovative teaching growing in your division?
9. Is there anything else you would like to share?

Principal Interview

1. Describe what you do as a principal at Punahou School.
2. In what ways is teacher innovation valued in this school community?
3. From your perspective, what obstacles, if any, inhibit teacher innovation?
4. From your perspective, what supports, if any, promote teacher innovation?
5. What are the primary ways you impact teacher innovation?
6. How do you, as principal, influence teacher innovation at Punahou School?
7. In what ways, if any, do you see teacher innovation differentiated between divisions?
8. Is there anything else you would like to share?

Head of School Interview

1. Describe your vision for teacher innovation at Punahou School.
2. In what ways, is teacher innovation valued in this school community?
3. From your perspective, what obstacles, if any, inhibit teacher innovation?
4. From your perspective, what supports, if any, promote teacher innovation?

5. What are the primary ways you impact teacher innovation?
6. In what ways, if any, do divisional differences impact school promotion of innovation?
7. Is there anything else you would like to share?

Focus Group Questions

Curricular Leadership Group

1. In what ways do you provide curricular leadership in your role?
2. In what ways, if any, has your role as a curricular leader evolved overtime?
3. In what ways, is teacher innovation valued in this school community?
4. From your perspective, what obstacles, if any, inhibit teacher innovation?
5. From your perspective, what supports, if any, promote teacher innovation?
6. What are the primary ways you facilitate teacher innovation?
7. How do you, as a curricular leader, influence teacher innovation at Punahou School?
8. In what ways, if any, do divisional differences impact teacher innovation?
9. Is there anything else you would like to share?

Appendix F: Individual and Focus Group Consent Forms

University of Hawai‘i at Mānoa

Consent to Participate in Dissertation Research Study
Individual Interviews/Focus Groups

An Examination of Innovative
Teaching Practices at Punahou School

My name is Andrew Aldrich. I am graduate student conducting this study in connection with the Doctor of Education (Ed.D) in Professional Educational Practice Program at the University of Hawai‘i at Mānoa. As part of the requirements for earning my degree, I am conducting this research study. The purpose of this study is to better understand how teachers come to embrace innovative teaching practices, what mechanism impact their innovations, and how they overcome any range of institutional challenges. I am inviting you to participate in this research study because you were either identified by your supervisors and colleagues as an innovative teacher or are leader with curricular oversight over innovative teachers.

Activities and Time Commitment: If you participate in this research study, I will meet with you for an individual interview and/or a focus group interview at a location and time convenient for you. The interview may consist of 5 to10 open-ended questions and may take 45 minutes to an hour. Only you and I will be present during individual interviews. Focus group interviews will include myself and between 3-7 participants. Responses will be audio-recorded. You will be one of 12-20 people from Punahou School with whom I will interview for this research study.

Benefits and Risks: The results of this study may contribute to the growing literature on innovative teachers and how schools might better support innovative teachers and transform to align 21st century innovative teaching and learning aspirations with institutional practices when necessary. I believe there is little risk to you in participating in this research study. You may also stop the interview or you may withdraw from the study at any time.

Privacy and Confidentiality: I will store all data and recordings I collect in this study offline and in safeplace. Only my University of Hawai‘i advisor and myself will have access to the information. The University of Hawai‘i Human Studies Program has the right to review research records for this study.

At the conclusion of the study, all sources of data will be destroyed, I will erase or destroy the audio-recordings. When I report the results of the research study, I will not use your name and will not use any other personal identifying information that can identify you. I will use pseudonyms and report the findings in a way that protects your privacy and confidentiality to the extent allowed by law.

Voluntary Participation: Your participation in this study is completely voluntary. You may withdraw your participation at any time. If you decide to withdraw from the study

there will be no penalty or loss to you. Your choice to participate or not participate will not affect your rights to services at University of Hawaii or Punahou School.

Questions: If you have any questions about this study, please call or email me, Andrew Aldrich Co-Investigator at 808-783-5987 & aaldrich@hawaii.edu. You may also contact my adviser and Primary Investigator, Dr. Steve Shiraki, at 808-285-8892 and shirkis@hawaii.edu. If you have questions about your rights as a research participant, you may contact the UH Human Studies Program at 808.956.5007 or uhirb@hawaii.edu.

If you agree to participate in this project, please sign and date the signature page and retain the information above for your records. Thank you for participating in this exciting examination of innovative teaching practices at Punahou School.

Signature(s) for Consent:I give permission to participate in the individual interview and/or focus group interview research study entitled, *An Examination of Innovative Teaching Practices at Punahou School.*

Name of Participant (Print):

_____

Participant's Signature:

_____

Date: _____

Signature of the Person Obtaining Consent: _____

Date: _____

I give permission to be audio-recorded in the individual interview and/or focus group interview as part of the research study entitled, *An Examination of Innovative Teaching Practices at Punahou School.*

Name of Participant (Print):

_____

Participant's Signature:

_____

Date: _____

Signature of the Person Obtaining Consent: _____

Date: _____

Appendix G: Interview Protocol

Innovative Teacher Interview Protocol

Welcome, and thank you for participating in this interview. My name is Andrew Aldrich, and in addition to being a Middle School Supervisor at Punahou, I am a graduate student in the Doctor in Education (Ed.D) in the Professional Educational Practice Program at the University of Hawai‘i at Mānoa. I am conducting a research study examining how teachers come to embrace innovative teaching practices, what mechanism impact their innovation, and how they overcome any range of institutional challenges. I am inviting you to participate in this research study because your supervisors and colleagues identified you as an innovative teacher at Punahou School.

Your participation is completely voluntary. Please know, you may feel free to end the interview at any point. Your responses will be kept confidential and anonymous, and available only to the research team and its advisors. With your permission, this interview will be audio recorded to help us retain your ideas more accurately for research analysis. Once the study is complete, the recordings and any identifying markers will be destroyed.

If you agree to be in the study, but later change your mind, you may withdraw at any time. There are no consequences of any kind if you decide not to participate.

Today's interview will consist of six to eight questions and take about 45 minutes to an hour to conduct. If you wish to continue participation, please review and sign the informed consent form.

Any questions before we begin the interview?

***Start recording. Test the recorder (think of what you are going to say as a test beforehand—perhaps the school's vision to help with the ambiance)**

Thank you and nice to meet all of you.

In closing, thank you again for your time and commitment.

References

Barr, J. J. (2011). The relationship between teachers' empathy and perceptions of school culture. *Educational Studies*, *37*(3), 365–369. https://doi.org/10.1080/03055698.2010.506342

Carmeli, A., Meitar, R., & Weisberg, J. (2006). Self-leadership skills and innovative behavior at work. *International Journal of Manpower*, *27*(1), 75–90. https://doi.org/10.1108/01437720610652853

Chang, A. F., Berger, S. E., & Chang, B. (1981). The relationship of student self-esteem and teacher empathy to classroom learning. *Psychology: A Journal of Human Behavior*, *18*(4), 21–25.

Chang, C. P., Chuang, H. W., & Bennington, L. (2010). Organizational climate for innovation and creative teaching in urban and rural schools. *Quality & Quantity*, *45*(4), 935–951. https://doi.org/10.1007/s11135-010-9405-x

Chen, M., & Lucas, G. (2012). *Education nation: six leading edges of innovation in our schools*. San Francisco: Jossey-Bass.

Evans, R. (2001). *The human side of school change: Reform, resistance, and the real-life problems of innovation*. Jossey-Bass.

Fullan, M. (2011). *Change leader: Learning to do what matters most*. San Francisco: Jossey-Bass.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, *78*(6), 1360–1380. https://doi.org/10.1086/225469

Hendricks, C. C. (2012). *Improving schools through action research: A reflective practice approach* (3rd ed.). Upper Saddle River, N.J: Pearson.

Herr, K. G., & Anderson, G. L. (2014). *The action research dissertation: A guide for students and faculty* (2nd ed.). Thousand Oaks, California: SAGE Publications, Inc.

Horng, J. S., Hong, J. C., ChanLin, L. J., Chang, S. H., & Chu, H. C. (2005). Creative teachers and creative teaching strategies. *International Journal of Consumer Studies*, *29*(4), 352–358. https://doi.org/10.1111/j.1470-6431.2005.00445.x

Janssen, O. (2003). Innovative behaviour and job involvement at the price of conflict and less satisfactory relations with co-workers. *Journal of Occupational and Organizational Psychology*, *76*(3), 347–364. https://doi.org/10.1348/096317903769647210

Jerald, C. D. (2008). *Benchmarking for success: Ensuring U.S. students receive a world-class education*. National Governors Association. Retrieved from https://eric.ed.gov/?id=ED504084

Barmer, A., Diliberti, M., Hussar, W., Kena, G., Mann, F. B., McFarland, J., Musu-Gillette, L., Wang, X., Wilkinson-Flicker, D., Zhang, J. (n.d.). The condition of education - Elementary and secondary education - Student effort, persistence and progress - Public high school graduation rates - Indicator may (2016). Retrieved from http://nces.ed.gov/programs/coe/indicator_coi.asp

Khan, S. (2013). The One world schoolhouse: Education reimagined (Reprint ed.). New York: Twelve.

Kovacs, P. E. (2010). The Gates Foundation and the future of US “public” schools. Routledge.

Loogma, K., Kruusvall, J., & Ümarik, M. (2012). E-learning as innovation: Exploring innovativeness of the VET teachers' community in Estonia. *Computers & Education*, *58*(2), 808–817. https://doi.org/10.1016/j.compedu.2011.10.005

Merriam, S. (2009). Qualitative research: A guide to design and implementation (3rd ed.). San Francisco: Jossey-Bass.

Messmann, G., Mulder, R. H., & Gruber, H. (2010). Relations between vocational teachers' characteristics of professionalism and their innovative work behaviour. *Empirical Research in Vocational Education and Training*, *2*(1), 21–40.

Mueller, J., Wood, E., Willoughby, T., Ross, C., & Specht, J. (2008). Identifying discriminating variables between teachers who fully integrate computers and teachers with limited integration. *Computers & Education*, *51*(4), 1523–1537. https://doi.org/10.1016/j.compedu.2008.02.003

Palmer, P. J. (1997). The heart of a teacher identity and integrity in teaching. Change: The Magazine of Higher Learning, 29(6), 14–21. https://doi.org/10.1080/00091389709602343

Ping Yu, J. J. W. (2007). Is playfulness a benefit to work? Empirical evidence of professionals in Taiwan. Int. J. of Technology Management, 39(3/4). https://doi.org/10.1504/IJTM.2007.013503

Pope, D., Brown, M., & Miles, S. (2015). Overloaded and underprepared: Strategies for stronger schools and healthy, successful kids. San Francisco: Jossey-Bass.

Runhaar, P. R. (2008). Promoting teachers' professional development. (unpublished doctoral dissertation). Universiteit Twente, Enschede, Netherlands.

Schussler, D. L., Poole, I. R., Whitlock, T. W., & Evertson, C. M. (2007). Layers and links: Learning to juggle 'one more thing' in the classroom. *Teaching and Teacher Education*, *23*(5), 572–585. https://doi.org/10.1016/j.tate.2007.01.016

Scott, J. (2013, March 17). Aims of a Punahou education. Retrieved March 22, 2016, from http://www.punahou.edu/about/leadership/from-the-president/item/index.aspx?linkid=417&moduleid=78

Tettegah, S., & Anderson, C. J. (2007). Pre-service teachers' empathy and cognitions: Statistical analysis of text data by graphical models. *Contemporary Educational Psychology*, *32*(1), 48–82. https://doi.org/10.1016/j.cedpsych.2006.10.010

Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a model of explaining teachers' innovative behavior: A literature review. Review of Educational Research, 85(3), 430–471. https://doi.org/10.3102/0034654314557949

Vedder, R., Denhart, C., & Robe, J. (2013). Why Are recent college graduates underemployed? University enrollments and labor-market realities. Center for College Affordability and Productivity. Retrieved from https://eric.ed.gov/?id=ED539373

Wagner, T. (2010). The global achievement gap: Why even Our best schools don't teach the new survival skills our children need—and what we can do about it (1st ed.). New York: Basic Books.

Wagner, T. (2012). Creating innovators: The making of young people who will change the world (1st ed.). New York: Scribner.

Wagner, T., & Dintersmith, T. (2015). Most likely to succeed: Preparing our kids for the innovation era. New York: Scribner.

Wohlstetter, P., Smith, J., & Farrell, C. C. (2013). Choices and challenges: Charter school performance in perspective. Cambridge: Harvard Education Press.

Yang, S. C., & Huang, Y. F. (2008). A study of high school English teachers' behavior, concerns and beliefs in integrating information technology into English instruction. Computers in Human Behavior, 24(3), 1085–1103. https://doi.org/10.1016/j.chb.2007.03.009

Zhao, Y. (2012). World class learners: Educating creative and entrepreneurial students (1st ed.). Thousand Oaks, Calif: Corwin.

Zhao, Y., Andreson, R.C., Coates, K., Gearin, B., Shen, Y., Soltz, S., Thier, M., Zhang-Negrerie, D. (2015). Counting what counts: Reframing education outcomes. Bloomington, IN: Solution Tree.

Zhou, Q., Valiente, C., & Eisenberg, N. (2003). Empathy and its measurement. In S. J. Lopez & C. R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 269–284). Washington, DC, US: American Psychological Association,.